Ships AND SHIP MODELS

FEBRUARY 1956
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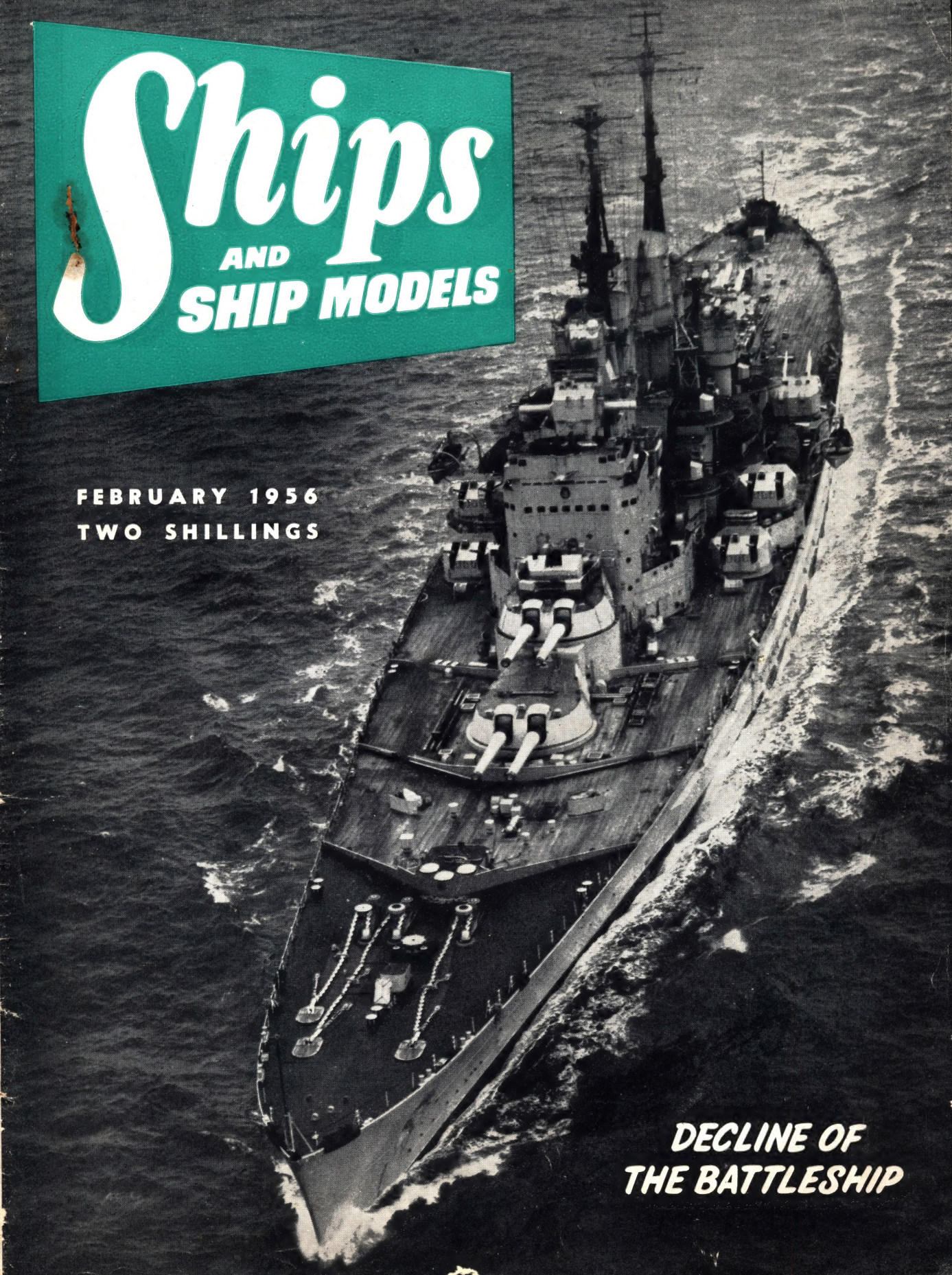

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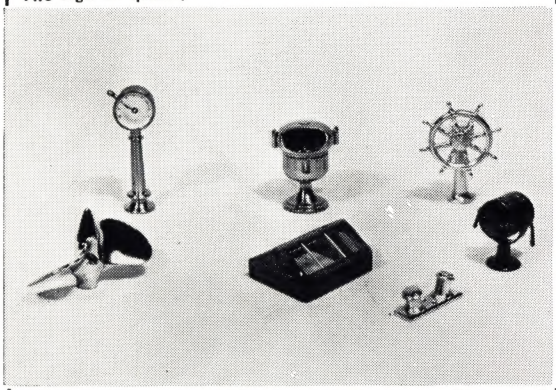

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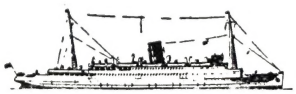

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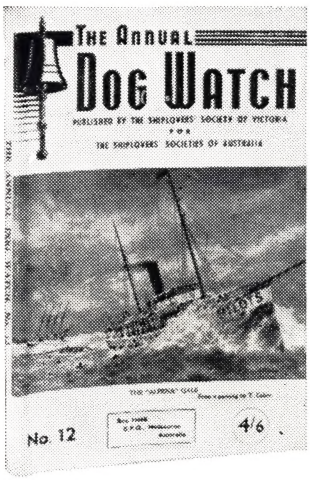

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Ships AND SHIP MODELS

INCORPORATING MODEL SHIPS & POWER BOATS

Vol. IX. No. 97. FEBRUARY 1956

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THE SHIP'S LOG

IT IS PLEASING to record that in the current issue of the Model Yachting Association News, which we received recently, the Association is not ignoring the question of the radio control of yachts. As the result of the meeting held last March and reported in this column in May, the invitation is open for radio control enthusiasts to lay their proposals before the council, which is prepared to co-operate to any reasonable extent in the preparation of rules for the development and control of this new phase of model yachting. In our opinion there is a good deal of exploratory work to be done before a proper appreciation of the effect of radio control on the sport can be assessed, and it would be unwise to formulate rules at this early stage as they would probably tend to restrict rather than help the radio control of model yachts. A number of yachtsmen are already making valuable investigations, as witness the trials at Poole reported in January, and others are looking for A class boats with which to experiment, and although it may take a year or more before reliable indications are obtained things are moving in the right direction.

We should like to commend to model yachting readers the provocative article by Col. Bowden on "Sailing Upright," the first instalment of which is published in this issue. It seems natural to assume that if a boat is heeling well over in a gale of wind with her lee rail under, she is travelling fast but the experienced yachtsman knows that this is not necessarily the case. The effect of the keel in its inclined position taking the boat off her course is an aspect of the question new to us and seems well worth thinking about.

★

Readers will notice in this issue the revival of two features which were crowded out when the magazine became SHIPS AND SHIP MODELS. One, "Readers' Models," depends entirely upon readers sending us photographs and some particulars of their models. One or two clear, sharp photographs and, if necessary, one or two rough sketches, along with about 300 words of description, are all that is required. Such an article can be a real help and inspiration to other ship modellers. Two guineas will be paid for each one published. The other feature "Ship Modellers' Scrapbook" has, so far, contained only items referring to historical ships and sailing ships but we propose to include also comparative drawings and photographs of fittings and details found in modern ships and, if possible, in naval vessels. Items for this feature will also be welcomed and suitably remunerated.

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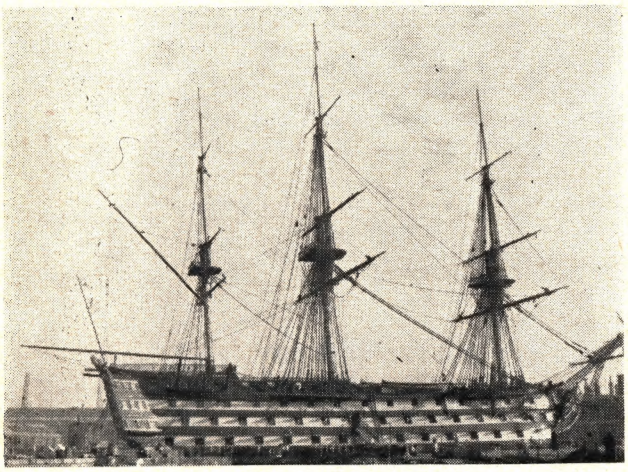
LOOKING



General view of the ship. Her height in the dry dock is arranged so that she appears as she would if afloat

IF YOU TAKE a quick look at H.M.S. *Victory*, where she lies in dry dock at Portsmouth Dockyard, you would not notice anything amiss with her at all.

She is the fine imposing ship-of-the-line she has been ever since she was placed in her permanent berth. None the less it is the sad fact that, below the orlop deck, almost the whole of the hull members are more or less rotten and, as a long-term policy, this part of the ship will have to be practically rebuilt. Infestation by the death-watch beetle, the great age of the timbers when the ship was berthed there, and the depredations of wind and rain on the dried-out timbers have had their effect.

In a steel cradle

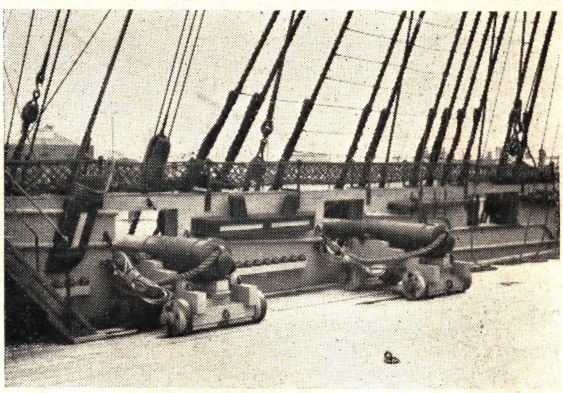
To place an old ship in a permanent dry-dock offers many advantages, but it also offers disadvantages. What you do then is to convert the ship's hull to a sort of land structure. Instead of being water-borne, as it was designed to be, it becomes like a great wooden house ashore, and that brings its own problems. If you took a closer look at the *Victory*, you would notice that she lies in a sort of steel cradle, a stout and well-built structure designed to support her even if she did settle a bit on her bed. Indeed, I would go so far as to say that the steel construction round her now would hold her up even if the lower part were near collapse, which it is not. The damage is serious, but not irreparable. It is all in hand, and the Admiralty—assisted by the *Victory* Advisory Technical Committee which it appointed for the purpose—has worked out a long-term plan for both coping with the damage which is now apparent, and maintaining the ship properly in perpetuity. There is no danger that the old ship will collapse.

"The position in the hold is serious but by no means desperate," reads a recent official Admiralty statement on the condition of the ship. "With a continuance of the present effort, it can be said to be definitely under control. A new study is to be made of the question of air-conditioning." Repairs are in hand, at the moment mainly in the fore end of the ship and aft, in the bread-room and round the stern-post where the rot is particularly bad. A small team of highly competent and interested shipwrights are at work on the vessel, and they have enough good oak and well-seasoned teak for their purpose. In many ways, teak will do the job better than oak.

Advisory committee

The *Victory* Advisory Technical Committee is a special body set up about a year ago for the very sound purpose of making available the best possible advice on specialised technical problems arising out of the *Victory's* wooden construction and cordage rigging and from the fact that she is permanently ashore. The chairman of the committee is Professor Sir A. E. Richardson, the distinguished president of the Royal Academy. Members include Dr. R. C. Anderson, president of the Society for Nautical Research; Mr. Frank Carr, director of the National Maritime Museum; Mr. J. N. Robertson, an experienced Lloyd's surveyor of wooden ships and craft; Dr. R. C. Fisher and Mr. E. H. Boulton, forestry and timber experts of lifelong experience; Professor Michael Lewis, formerly professor of History at the Royal Naval College, Greenwich;

Six-pounder guns on the quarterdeck, with the main shrouds



Mr. George P. B. Naish, secretary of the Society for Nautical Research; Sir Victor Shepheard, director of Naval Construction; Mr. I. E. King, an Admiralty expert on wooden ships; and several others who are expert in their various fields.

She is 190 years of age

Although the *Victory* is now within ten years of being two centuries old—the 2,162-ton ship was launched from Chatham Dockyard on 7 May, 1765, and a good many of her timbers had been some

AFTER THE 'VICTORY'

ALAN VILLIERS, an acknowledged expert on the subject, discusses the preservation of historic vessels and gives an answer to recurring fears for the safety of Nelson's famous ship

years in the hull before that—her national preservation, as a trust, dates from recent years. In the 1920s, the Society for Nautical Research (which itself was not very old at the time) launched an appeal to restore the *Victory* to her condition as at the Battle of Trafalgar. The late Sir James Caird was a great benefactor of the ship, as he was to so many other worth-while nautical enterprises, and a fund of some £100,000 (of which he contributed at least half) was eventually raised. This money was used to restore the *Victory*, to put in her permanent berth, and to get on with providing a *Victory* museum in the dockyard, adjacent to the ship. So old and so famous a ship, used by many admirals over so many years and still a commissioned ship in the Royal Navy though even then a century and three-quarters old, had naturally suffered many refits, more or less extensive, and had undergone many changes—so many that it required a committee of experts to thrash out just what her appearance at Trafalgar had been. She had worn so many guises upon her massive framework as a 100-gun ship of the line. A technical advisory committee was formed, in due course, but this became an inevitable casualty of the second world war when the Admiralty had many other and more pressing problems. But the main purpose was always achieved. There was the *Victory*, safe at the end of the war, preserved not only as a R.N. ship in commission but a National Monument, still serving as flagship of the admiral at Portsmouth, and a noble shrine visited annually by scores of thousands. She had a little bomb damage, it is true, but by improving the ventilation in the lower hold, this had probably done more good than harm.

Series of steel stays

The *Victory*, in her dry dock at Portsmouth Dockyard, presents many problems. She is very well secured there and her masts, stepped right through to the dock itself and stayed to the dockside by a series of strong steel stays, would stand up even if the hull—as of course is quite unthinkable—collapsed around them, and the hull itself rests securely on its own steel cradle. But there are some who regret that the ship was ever berthed in a dry dock or, if she was necessarily so berthed for a while until her timbers were restored, it might have been better if the dry dock then became a wet dock and her hull had the support of the waters it was designed to float in. A structure designed to float makes a poor " building," after a century or so, even when she was originally built as a glorious ship of the line. Old timbers meant to be well soaked in a permanent aura of antiseptic briny may react poorly when they are dried out and, when the *Victory* was finally declared fully " restored " in 1928, it is pretty certain that a good deal of the main members below the orlop deck—and maybe a few elsewhere as well—were even then in poor shape.

Problems of restoration

But the old problem of how far to carry out a restoration always arises. Any old ship, if she is kept long enough, inevitably becomes either a wreck or a replica. The original timbers will eventually

One of the steel cradles which support the bow of the ship

be replaced, piecemeal or holus-bolus and, if the ship survives long enough, there will be precious little of the original left about her except the shape. I have watched Swahili shipwrights on the beach by the river at Lamu in Kenya Colony industriously removing all the shell of a big dhow, then rebuilding a new shell on the shape of the old frames, and then, before decking, removing the frames as well and carefully replacing them as they originally were, with new frames. What have you then? A new ship, obviously. But she still bore the name of the old.

Minute and battered cutter

So it is, in greater or less degree, with such ships as the wooden whaler *Charles W. Morgan*, at Mystic, in Connecticut, and the famous *Gjoa* which Amundsen drifted westwards through the north-west passage and then presented to the port of San Francisco. A year or two ago, I had a good look at the *Gjoa* as she lies in Golden Gate Park, just outside the entrance to San Francisco's wonderful harbour. She had been rebuilt and all that remained of the original ship, I'd say, was the appearance. Yet, that was faithful, and that was enough. This was still the wonderful old *Gjoa*, the minute and battered, brave little cutter which had bashed and drifted a way where no man had been before in all of time.

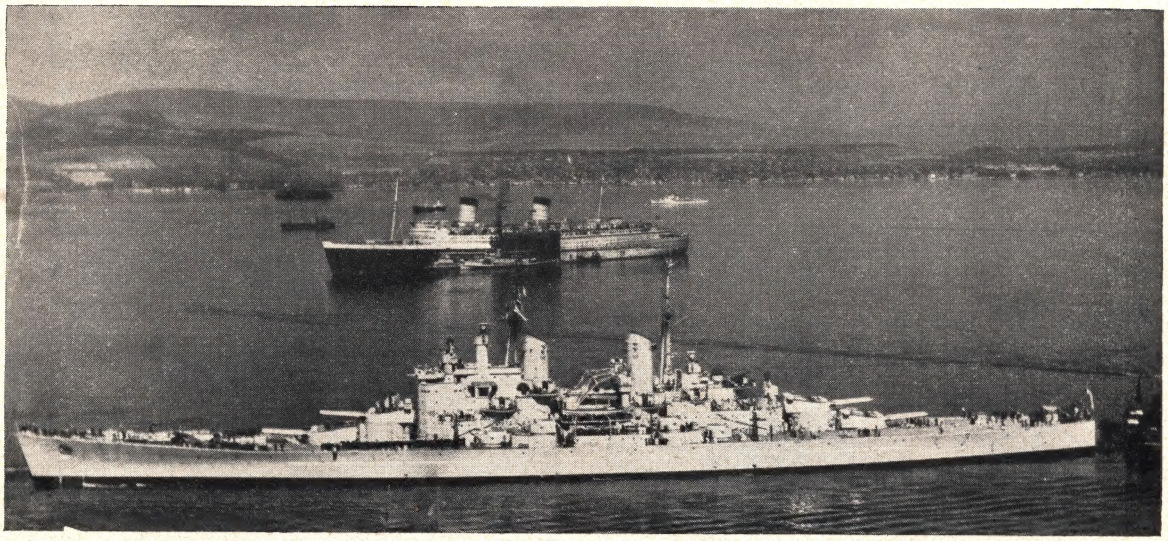
The base of the mainmast. The mast step placed across the keelson is the original but e.i. the mast and steel baseplate are modern

The starboard bow showing the harmonious lines of the cheeks and head rails. All the pictures are "Ships and Ship Models" copyright

So it is now with the *Victory* as she stands today. Her parts must be renewed, and in pretty good measure in the lower sections of the hull. But the *Victory* will always be the *Victory*, and it is good to know that the work is in hand. It is necessarily long-term and it will necessarily take a long time. But there are still good shipwrights who can do that class of work, and they are getting on with it under expert guidance and with the Admiralty's determination to see a good job well done.

DRAWINGS OF H.M.S. VICTORY

A complete set of $\frac{1}{8}$" scale drawings for H.M.S. Victory are now available in the Percival Marshall plans service. They comprise: Standard rigging 8s 6d; Running rigging 8s 6d; Deck plans 4s 6d; Inboard works 4s 6d; Outboard profile 4s 6d; Body plan 3s. Complete set 30s.



H.M.S. "Vanguard" on her first voyage in the Clyde

Last of a tradition

A link with the great days of British naval supremacy has been broken by the passing of the battleship . . .

writes DESMOND WETTERN

THE WORD BATTLESHIP for most people conjures up a picture of tremendous power, and, for many people, it is still synonymous with the Royal Navy.

The Admiralty announcement of a few months ago that H.M.S. *Vanguard* is to pay off into reserve must have come to many as a surprise, but that surprise must have been greatly magnified when the statement went on to point out that *Vanguard* was the last British battleship in commission. Indeed, there are only four other battleships in the service.

It is probably true to say that the passing of the battleship (for it is very doubtful if any of these five surviving ships will ever recommission) has severed one of the most outstanding links with the great days of British naval supremacy. Although during the greater part of Queen Victoria's reign there were comparatively few battleships in commission, the existence of the battleships, either in commission or more probably in ordinary (reserve), coupled with memories of the Nelsonian era, exercised a profound influence on world affairs.

Advent of the battleship

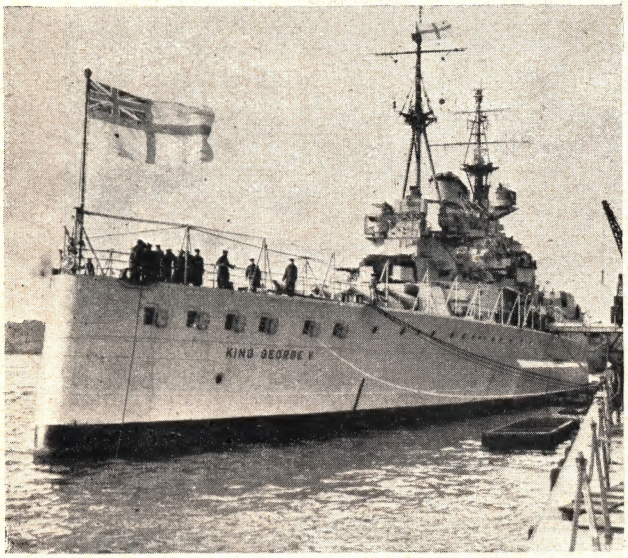
The modern battleship really came into existence with the completion of H.M.S. *Devastation* in 1873. She was a twin-screw turret ship of 9,330 tons and was strengthened with 12 in. of armour amidships. She was the first ship to be freed of the now useless trappings of masts and sails. She had one small mast mounted amidships for signalling purposes.

The first ships to have screws instead of paddles, turrets instead of guns mounted in broadsides, armour instead of reinforced wood, double bottoms and watertight compartments were *Collingwood*, *Benbow* and *Rodney* of 1886. All the ships at this time (1885-1905) carried a mixed armament. In the mid 1890s ships of the Majestic class carried four 12 in., twelve 6 in., sixteen 12 pounder and twelve 3 pounder guns. The result was that at long ranges the ships had not as much punch as their size, cost, speed and vulnerability to torpedo attack warranted. Speed was an important factor with these ships. There were no aids such as radar to help at night or in fog; if the enemy could escape under darkness one had to close with him when possible during the day and bring him to action before sundown.

Problem of torpedo attacks

At the turn of the century, the subject of torpedo attacks by the vessels of a nation inferior in naval strength to Great Britain was viewed with the utmost gravity in naval circles. Like the aeroplane a few decades later the torpedo boat was credited with extraordinary powers. Battleships bristled with small, quick-firing guns which were designed to sink

attacking torpedo boats which might try a stealthy attack at night. It was the super torpedo boat (the first two were the *Havock* and *Hornet* built in 1893) which really ended the torpedo-boat scare. These super torpedo boats or torpedo-boat catchers became the first destroyers.



H.M.S. "King George V" arriving at Devonport to go into dock for a refit

When Germany entered the naval armament race in the early part of this century there was a "ding-dong" battle for naval supremacy between the two countries. In 1905-06 the King Edward class made its appearance. They were the largest battleships yet built and were armed with four 12 in., four 9.2 in., ten 6 in., twelve 12-pounder and fourteen 3 pounder guns. They were reckoned the finest fighting ships of their time. The following year two further ships, the *Lord Nelson* and *Agamemnon* appeared which were even more heavily armed, having ten 9.2 in. guns instead of four. The point with all these ships was, of course, that they still had a divided armament.

In 1908 a shattering change came, which completely altered battleship design. "Jackie" Fisher brought forth the all big-gun ship—the *Dreadnought*. *Dreadnought* mounted ten 12 in. and twenty-four 12 pounder guns only. Her main armament broadside at maximum range was therefore 2½ times heavier than the King Edward's, though the difference in their tonnage was only just over 1,000 tons. The Germans, however, were quick to reply and only three years later they had completed the Nassau class armed with twelve 11 in. and twelve 6 in. guns. Three years was, however, sufficient to put Britain well in the lead. By August, 1914, there were 22 "Dreadnoughts" in commission with 10 "Dreadnought" battlecruisers, as against Germany's 13 "Dreadnoughts" and four "Dreadnought" battlecruisers. At the outbreak of war there were 29 "Dreadnoughts" and battleships and four battlecruisers in the Grand Fleet, 26 battleships in the Channel Fleet and two battlecruisers in the Mediterranean. Other battlecruisers were still undergoing trials. The Royal Navy was unquestionably the most powerful fighting force in the world.

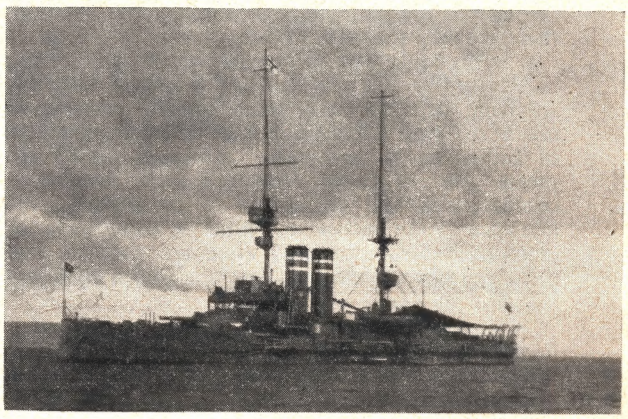
Jutland was the last major all-gun action. Though British losses were slightly heavier the victory was undoubtedly ours. At Jutland there was one small ship, an ex-cross-channel packet, the *Engadine*. She was a seaplane carrier and carried six aircraft. Few of those who fought at Jutland could have imagined that the long grey line of huge ships which Scheer saw stretching away into the mist through the smoke of the sinking cruiser *Defence* were, in 30 years, to be little more than a memory. By 1925 the politicians, egged on by the crass arguments of the air enthusiasts, had utterly broken this mighty fleet: the Royal Navy was reduced to 18 "Dreadnoughts" and battlecruisers.

No move until . . .

Apart from *Nelson* and *Rodney*, whose design was ruined by the Washington Treaty, no more battleships were built until Hitler had plunged the world into war once more. In 1937 the Admiralty at last defeated the politicians and air enthusiasts, and five battleships of the King George V class were ordered. They were completed only just in time, for, had we not had at least two of these ships in commission in 1941, the damage *Bismarck* would have created would have been incalculable. Apart from *Hood* none of our pre-war battleships and battlecruisers would have had a chance to get near this powerful ship.

"Warspite"—the most famous

Undoubtedly the most famous battleship to serve in the last war was *Warspite*. She was severely damaged at Jutland when her steering gear was shot away and she steamed in a full circle in full view of the German fleet. In the latter part of the 1930s



H.M.S. "King Edward VII," built early in the century

she was rebuilt at Portsmouth and emerged almost as a new ship. To illustrate the power of the battleship it is worth while outlining the history of this famous ship. She, more than any other vessel of her type, was the perfect reply to the attacks made on the all big gun ships in between the wars.

H.M.S. "Dreadnought" which brought a big change in battleship design

On 13 April, 1940, flying the flag of Vice-Admiral Whitworth, she entered Narvik fjord and together with nine destroyers sank six enemy destroyers and some merchant vessels, thus avenging the loss of the destroyers *Hunter* and *Hardy*, which had been sunk in the first battle of Narvik.

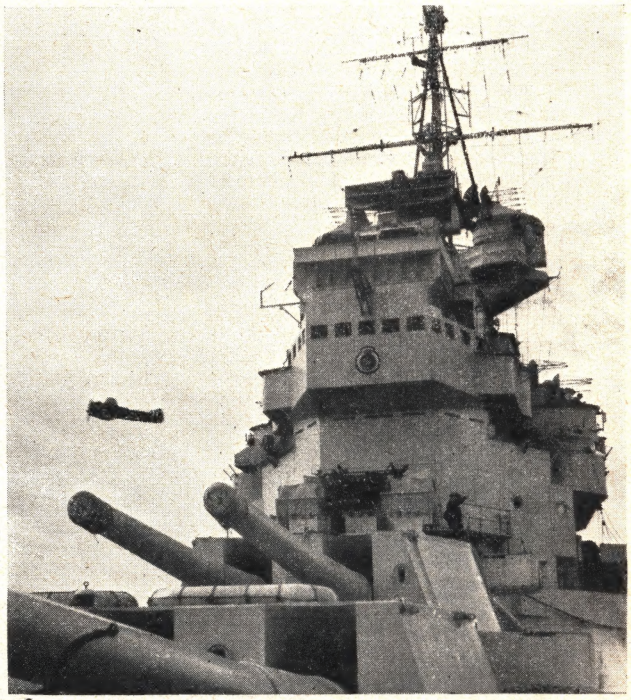
In May, Admiral (now Admiral of the Fleet) Viscount Cunningham raised his flag as Commander-in-Chief, Mediterranean, in *Warspite*. On 9 July, 1940, in company with her sister ship, the *Malaya*, and the *Royal Sovereign*, she was covering some convoys from Malta to Alexandria when they encountered an Italian force of two battleships with several cruisers and destroyers which was returning from covering a convoy to Benghazi. Though the Italians escaped under cover of a smoke screen one of their battleships was hit by *Warspite* at a range of 15 miles. It is said that the Italians thought at first that they had been bombed, believing that no ship could fire so accurately at such a range !

The big chase !

On 28 March, 1941, aircraft from the carrier *Formidable* reported sighting three cruisers and four destroyers south-west of Crete. A little later Vice-Admiral Pridham-Wippell with a force of British cruisers sighted the enemy vessels. An hour later the enemy turned away and the British cruisers followed. The chase continued until Italian battleships were sighted to the north and the British cruisers turned away in an attempt to lure the Italians towards the main fleet. An unsuccessful attack was then made on the Italian battleship *Vittorio Veneto* by aircraft from *Formidable*.

The attack caused the enemy to turn away again and the chase continued. The question was how to reduce the enemy's speed to enable our battleships to catch up. One aircraft torpedo dropped by *Formidable's* aircraft in a further attack slowed the *Vittorio Veneto* slightly but still not enough. Heavy air attacks continued on the enemy ship but later attacks, which were highly successful, were in fact made on the cruiser *Pola* which was mistaken for a battleship in the half-light of evening.

However, Admiral Cunningham continued the chase during the night and, at 8.30 p.m. the cruiser *Ajax* detected a large enemy ship on her radar. While the main fleet was closing on this disabled vessel two further large enemy ships were detected and the main fleet turned towards these new sightings.



H.M.S. "King George V" at sea. She is being attacked by Beaufighters in an exercise

Searchlights showed the enemy to be two 8 in. cruisers with some destroyers. Four minutes of 15 in. gunfire from *Warspite*, *Barham* and *Valiant* left the two enemy ships burning furiously. A short while later the third damaged cruiser originally sighted by *Ajax* was sunk. So ended the battle of Matapan.

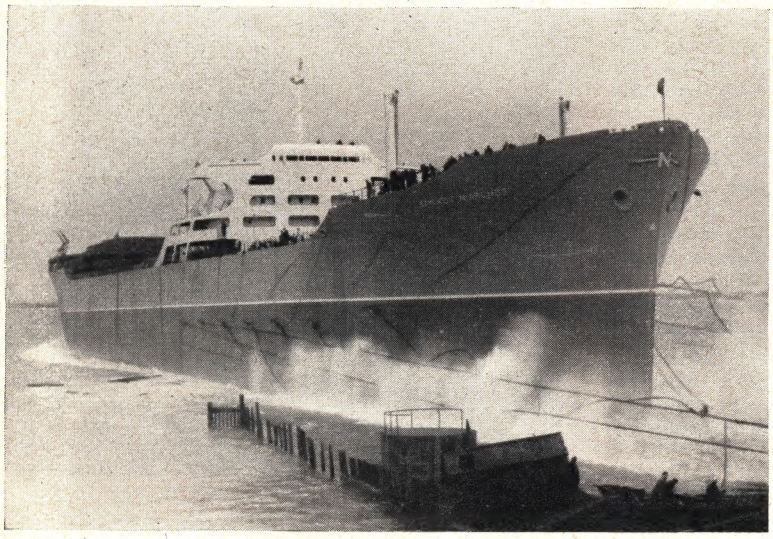
Though the aircraft carrying a nuclear weapon has decided the fate of the battleship it may also be instrumental in its resurrection. A ship fitted with guided missiles will have to be of a fairly large size to carry a reasonable number of them. It may well be that such a ship will be considered too big to be called a cruiser and so we may yet see the return of the battleship in a new form.

THE WORLD'S LARGEST TANKER

GREEK PARTICIPATION in the oil tanker business is one of the most notable developments of post-war shipping. Like the Norwegians, whose present tanker fleet is the second largest in the world, their vessels are designed and built for charter to the big oil groups, but the Greek approach to the subject has been a different one. The Norwegians who have participated in this trade since the early 'twenties, have, in the main, been content to build ships which would conform to charterers' requirements.

The Greek owner, more cosmopolitan and imaginative by nature, has not been content to merely follow this lead but has looked further ahead, appreciated the economies offered by the operator has to face limitations set by the depth of water in the Suez Canal, etc., berthing facilities and repair dry docks ; also, in the case of exceptionally large vessels, by shipyard facilities and prohibitively great initial design costs. The charterer, in turn, must bear in mind the limitations of cargo storage facilities at the oil refineries.

The pioneer of the present day oil tanker, the *Gluckauf*, a ship of 3,000 tons d.w., was launched in 1885 by Armstrong Whitworth. This Tyneside shipyard later became part of the great Vickers-Armstrongs group, from



The huge tanker enters the water

larger and faster tankers and by building accordingly has given the lead to the rest of the world. The average cost of transporting oil to the U.K. is estimated at some 23 per cent. of the final charge to the consumer—tax excluded—and in various ways the use of the "super" tanker helps to keep this figure down. Firstly, she costs less per ton d.w. to build than does a smaller ship; secondly, her crew is proportionately smaller. Again, the consumption of bunker fuel per ton transported is less in a large vessel and this is also true for a number of other items. Against these advantages

whose Barrow yard the giant *Spyros Niarchos* was launched last December. The largest merchant ship to be built in Britain since the war and the largest afloat to be exclusively designed for oil carrying, she has a d.w. capacity of 47,750 tons.

The *Spyros Niarchos* is named after her owner's late father, but the name is also borne by his young son. The vessel is the first of a pair of similar design building at Barrow for the Niarchos group and is, incidentally, the first to be launched by her builders since they modified their name to Vicker-Armstrongs (Shipbuilders) Ltd.

It is not size alone which makes her so outstanding, but also the very high standard of design and equipment. An interesting and unusual point is that the two vessels were originally designed to have a d.w. capacity of 32,000 tons, a figure which was later increased to 44,000, then to the final d.w. capacity of 47,750 tons.

Her main dimensions are: length o.a., 757 ft.; length, b.p., 725 ft.; breadth, mld., 97 ft. 2 in.; depth, mld., 52 ft.; and maximum draught 37 ft. The main machinery consists of a set of D.R. geared high pressure, high temperature Pametrada steam turbines which develop a maximum of 20,000 s.h.p., the highest power ever employed in a single screw merchant ship. These, taking steam from three Foster Wheeler watertube boilers and driving a five-bladed propeller, are designed to give a trial speed of 17 knots at 36 ft. draught.

Four turbine pumps

Following modern tanker technique the ship has two longitudinal bulkheads which divide her cargo tanks into 33 compartments. All of these save No. 6 wing tanks—which have no piping—will be used for oil carrying. For the handling of her cargo there will be four turbine driven centrifugal pumps, each having a water handling capacity of 1,000 tons per hour. Right forward and separated by a cofferdam, there is a dry cargo hold. This is served by a pair of 5-ton derricks mounted on kingposts, which by means of cross-bracing will also carry the forward steaming light. The design of these kingposts and the single mast deserves special mention. It is remarkable that it is a tanker-owning firm and not a passenger one that has shown how attractively kingposts can be shaped.

The new ship will be even better looking than earlier Niarchos tankers. A notable feature of her profile is the absence of large verticals and the

way the various levels of bridge stanchions harmonise, both with each other and with the after edge of the bridge, which is even more steeply raked than the front. This structure is five decks high. Beneath the navigating bridge will be the Captain's suite, with owner's suite, guests' cabins and public rooms on the next one down. Yet lower, at bridge deck level, the deck officers will have their cabins, while the space beneath

in the news

will be used for stores. The Chief Engineer's suite—a repeat of the Captain's—will be just forward of the funnel. The hospital will be at the after end of this deck. Cabins for engineer officers as well as dining room and lounge for them and deck officers will be on the poop deck.

The vessel was launched into the teeth of a high wind and this caused some worry, for when waterborne and before the various tugs (Alexandra Towing, Rea and British Railways) could take charge her stern was blown round, so that she lay broadside-on to wind and shore and only a short distance from the latter.

Her Colour Scheme

The *Spyros Niarchos* was painted with light grey topsides, red, white and blue bow flash and white ribbon at waterline. Beneath this level the hull was beige, though black by the propeller aperture, In due course, however, she will be given dark green boot-topping over a dark reddish brown bottom. The superstructure and kingposts will be white, deck fittings a very light grey and the decks themselves dark green. The funnel will be painted black, with white N superimposed on red (top), white and blue bands.

The Niarchos group has a vast fleet—predominantly a tanker one—numbering over 60 vessels in service or on order, with a combined d.w. tonnage of more than 1,600,000. The largest independent tanker fleet in the world, it now has eight of 40,500 tons d.w. apiece on order in Japan and two of 38,870 tons d.w. in Sweden, while a further pair of 25,000 tonners

View of the stern of "Spyros Niarchos" before the launch showing the five-bladed propeller

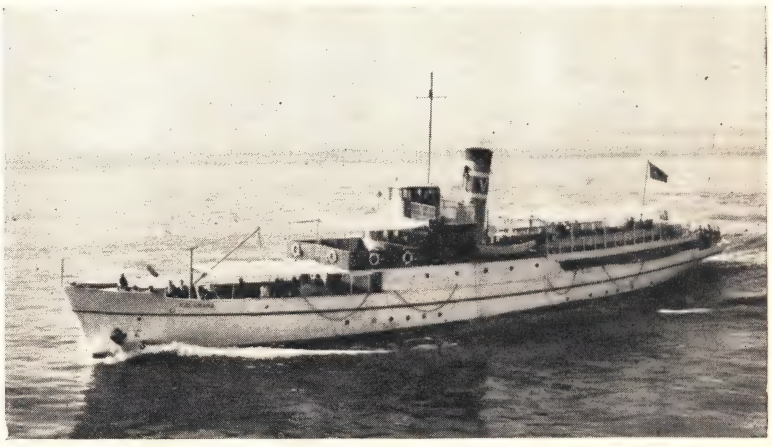
are planned for U.S. yards. As regards dry cargo ships, it has five each of 12,500 tons d.w. on order, as well as two 19,000 ton bulk carriers. A point which has been barely noticed by the Press was the fact that on December 2, when the *Spyros Niarchos* was launched, the Niarchos group also took delivery of another tanker, the Swedish-built *World Sincerity*, a vessel of 32,500 tons d.w.

The launching of this giant tanker brought to mind—in complete contrast—the oldest existing Vickers-built vessel. This was the *Kalamara*, once a British privately owned steam yacht and which now plies in Greek coastal waters. She was built at Barrow-in-Furness in 1898 by Vickers, Son & Maxim Ltd., her yard number being 269. For the greater part of her life she was known as the *Jeanette*, later becoming the *Seanymph*. During the last war the Greek coastal passenger fleet was almost entirely destroyed and the vessel was one of the pathetically small nucleus fleet with which the Greek Ministry of Marine reopened their vital local services.

Reliable in bad weather

Renamed *Kalamara* (*Cala Mara* in Lloyd's Register) in 1947, she was sold soon afterwards to her present owners, G. S. & N. S. Vatikiostis of Piraeus, who employ her on a regular service between that port and the island of Poros, some 40 miles distant. This is a favourite week-end resort for Athenians and during the season she and three other vessels provide two sailings per day during mid-week, with more at week-ends. The service is maintained all the year round, but with less frequent sailings during the winter. Although she does not provide all the amenities offered by the latest ships on this run, her heavily-built steel hull makes her more reliable in bad weather than the other lightly built motor vessels. She has an overall length of 165 ft. and a beam of 21.2 ft., while the gross tonnage is 217. Her original triple expansion engine—made by the hull builders—give a speed of about 11 knots. During the summer she carries some 300-400 passengers in several classes, but in winter this figure is reduced.

S.S. "Kalamara, the oldest existing Vickers-built vessel



DRAWING THE LINES

AFTER MEASURING UP the hull as described in last month's issue one finds oneself with a mass of measurements and a few sketches.

To make these into a drawing, showing the lines of the hull, is fairly easy once the general principles are grasped. Where possible the lines should be drawn to the scale of $\frac{1}{4}$ in. to 1 ft. which for moderately sized vessels is a very convenient size for the model.

A fairly large sheet of paper is required, with sufficient space for the hull profile, and space on the right for the sections or body plan and below for the half breadth plan. For constructional purposes it is better to ignore the waterline and to lay out the ship with its keel as the horizontal base line and the ribs or frames at right angles to the keel. Admittedly, the sections were taken with a plumb line, whereas the keel was on an incline, but the error introduced by this difference will be negligible. In any case the frames were usually erected at right angles to the keel.

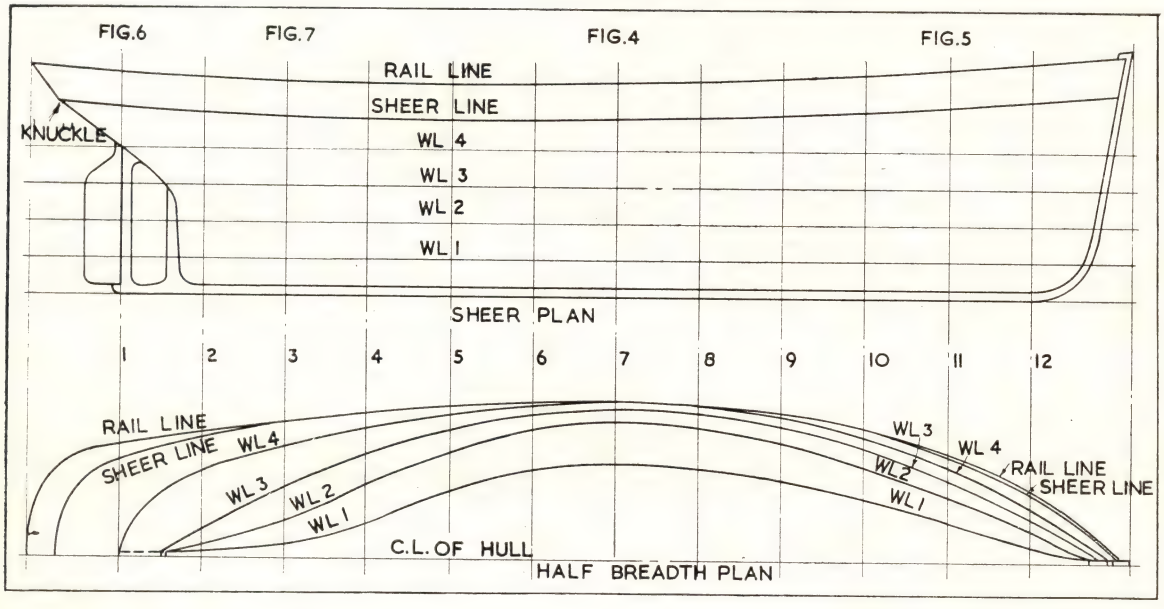
The sheer plan

First draw the profile or sheer plan to $\frac{1}{4}$ in. scale. From the dimensions obtained and the sketches made when measuring this should be a straightforward job. Indicate on this drawing the positions where the cross sections (Figs. 4, 5, 6 and 7) were taken, and draw through them vertical lines, continuing them down for the half breadth plan.

Next, on a separate sheet of stiff paper make a drawing, to $\frac{1}{4}$ in. scale, of each of the half sections. The construction lines for these are shown in Figs. 4, 5, 6 and 7 in last month's article. Taking Fig. 4 as an example, draw the horizontal line *SR* and on it erect the perpendiculars *ST* and *RU*. In *ST* mark off the position of *V*, join *UV*, and on it erect perpendiculars at the points where the measurements were taken. Mark these measurements on their respective perpendiculars, and through the series of points thus obtained draw a curve. This curve will indicate the outline of the section of the hull at that position or station. A similar drawing should be made for each of the stations at which sections were measured. These are to be used as templates and should be cut out as shown in Fig. 10, points *T* and *R* being indicated on Figs. 4, 5 and 7 and points *Z* and *V* on Fig. 6.

The body plan

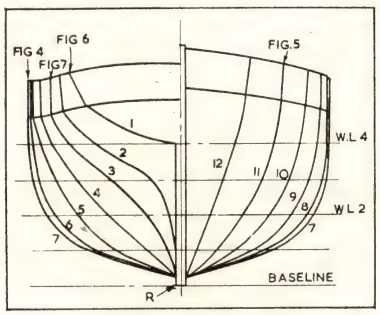
We must now draw the body plan. Produce the base line and on it erect a perpendicular line to indicate the centre line of the hull. Draw point *R*, Figs. 4, 5 and 7 (*V* Fig. 6), half the thickness of the keel away from the centre-line and indicate the position of *T*, Figs. 4, 5 and 7 (*Z* Fig. 6), both as to height from base line and distance from centre-line. Using the templates already prepared, draw curves, 4, 5, 6 and 7 through the appropriate points. Curve 4, being the midship section, should be used on both sides of the centre-line with curve 5 on the right-hand side and 6 and 7 on the left-hand. Extend these curves up to the height of the bulwark, following the



OF A HULL

Last month, P. A. RUMBELOW described his practical method of taking off the lines of a hull. This article shows how the dimensions are used in making the drawing of the hull lines

general trend of the curve. The points *T* and *Z* indicate the sheer line on underside of the rubbing strake when projected across to their corresponding lines on the sheer plan should be so situated that a line drawn through them is a fair curve. Above this curve on the sheer plan indicate at each section the height of the bulwarks and through the points thus obtained draw the rail line which is usually approximately parallel to the sheer line.



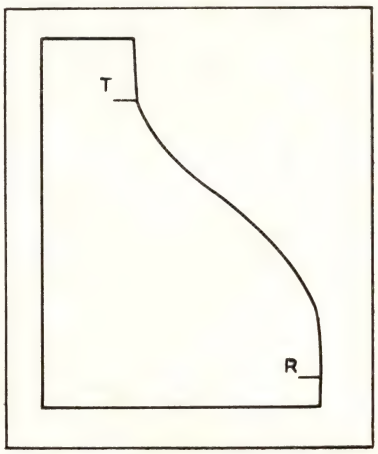
A series of lines should now be drawn parallel to the base line and across the sheer plan and body plan. They should be spaced equally and if the model is to be built on the bread-and-butter system the spacing should be arranged to suit the thickness of wood to be used. For a large model, if the wood is to be sawn into what are known as 1 in. boards, the spacing of the lines should be $\frac{7}{8}$ in. or even $\frac{3}{16}$ in. as this will be the finished thickness of the board after sawing and planing smooth. For smaller models the spacing may be suitably reduced. A few enquiries at the saw mill would be useful in this connection. These horizontal lines are known as the waterlines, although where the vessel draws more water aft than forward the actual load waterline (LWL) will not be parallel to the keel.

The half breadth plan

Next draw a centre-line some distance below the base line and parallel to it. The vertical lines indicating the sections have already been drawn to cross this line. Now taking the waterline No. 4, measure on it the distance from the centre-line to the point where each of the sections intersects it and mark this distance on each of the corresponding sections. A fair curve drawn through these points will show the half plan of the hull at this level. Repeat the process at each of the other water-lines *WL* 3, *WL* 2 and *WL* 1. The sheer line and rail line should now be drawn. The overall length can be projected down from the sheer plan and the curve of the taffrail and the knuckle at the stern drawn by the method shown in Fig. 9 in last month's issue. The points for the remainder of the curves can be measured from the body plan. You will then have a drawing somewhat like the half breadth plan in Fig. 9. At the run under the counter the lines will be hollow, the amount corresponding more or less to the hollow in Fig. 7. Apart from this, any small bumps or hollows in the lines will be due to incorrect marking off of the points, inaccurate draughtsmanship, or perhaps inaccurate measurements in the first place. If the discrepancy is slight it may be ignored. The main point is that the curves in the lines should be smooth or " fair."

Additional sections

To give a more complete idea of the hull form a further number of sections may be taken in addition to those at which measurements were made. Their positions are indicated by vertical lines drawn through the sheer plan and the waterlines plan and numbered (1 to 12). The distance from the centre-line to the point where each waterline intersects each section should be transferred to the correct waterline in the body plan. Through the points thus obtained additional sections can be drawn. The new sections, if the waterlines are fair and the distances correctly transferred, will give additional sections which will harmonise with those already drawn.



Buttock lines, which show vertical sections taken parallel to the centre-line, may be drawn in similar fashion, but they are useful mainly for comparison and are not essential to the construction of the hull, unless of course one intends building with vertical laminations, in which case they are of major importance. But that is a subject for another article as are also diagonals and displacement curves.

NEXT MONTH

Watch out for the March issue of *Ships and Ship Models*. The articles will include:

Fishermen of Brittany, by Alan Villiers

Sailing Upright, conclusion by Lt. Col. C. E. Bowden

An old 26-gun Ship, first of an important new series by R. J. Collins.

In addition, there will be the usual features. Make sure of your copy by placing an order with your newsagent.

THE ART OF SAILING UPRIGHT

Lt.-Col. C. E. BOWDEN explains the meaning of sailing upright, the reasons for its adoption, and how it affects the model yachts. It is particularly applicable when model yachts are under radio control.

SAILING UPRIGHT, OR sailing flat as the Americans sometimes term it, is one of the most vital and fascinating factors in modern racing sailing, as it so materially affects the modern yacht with its deep keel and shallow canoe body. It is an art that all leading helmsmen understand and practice. The art is not as easy as it sounds, and therein lies the gain for those who excel at it.

Closehauled on the wind, it calls for great powers of anticipation of the gusts and a delicate hand on the tiller. To be well applied, it also calls for a knowledge of hull and keel action in the water, as well as the angle of attack and trim of sails. It even requires some knowledge of design.

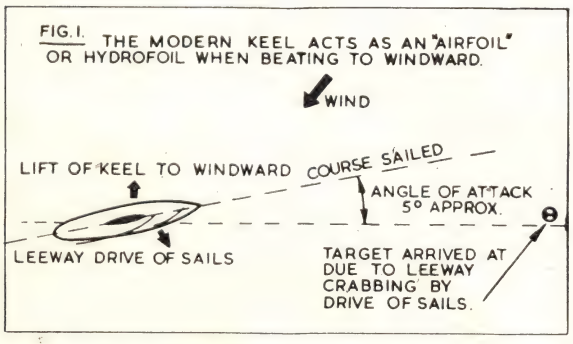
Sailing upright or flat does not mean dead bolt upright at all times when beating to windward, as a few individuals seem to imagine. It means holding the boat on her feet and not overheeled when sailing to windward, and as near upright as no matter when off the wind and running. The model yacht is as much affected by heeling as the full-scale yacht. To understand the subject properly the technique of full-scale yacht sailing is required.

Sailing to windward

When sailing to windward, different craft have an optimum angle of heel to suit the hull and keel design. To exceed this optimum angle of heel causes a lowering of speed and ground made good to windward, due to increase of hull resistance, reduced lift/drag ratio of the sails, and, most important of all, the reduced efficiency of the hydrofoil keel appendage.

The above facts have been abundantly proved by the following :—

(*a*) All leading helmsmen of one design classes have found it to be so by experience. Many have written or lectured about it.


WIND
LIFT OF KEEL TO WINDWARD
COURSE SAILED
ANGLE OF ATTACK 5° APPROX.
LEEWAY DRIVE OF SAILS
TARGET ARRIVED AT DUE TO LEEWAY CRABBING BY DRIVE OF SAILS.
FIG. 1. THE MODERN KEEL ACTS AS AN "AIRFOIL" OR HYDROFOIL WHEN BEATING TO WINDWARD.

(*b*) In any well-known one-design class (full-scale) it is easy to pick out the leading helmsmen by the way they sail their boats more upright, to windward in strong difficult gusty weather, than their less skilful competitors.

(*c*) It has been proved beyond any doubt, by tank tests of models, and measured sailing tests full-scale.

Dinghies take more heel

Some types of craft can be heeled slightly more than others, according to shape and design, when beating to windward—all should sail upright off the wind. Thus the American scows for lake sailing are heeled more than normal boats, to sail along their long chines, or bilges, and reduce wetted surface when going to windward. Some of the new flaired British dinghies take more heel. Narrow fine lined displacement keel yachts can be heeled slightly more than planing keel craft, beamier keel craft, and centreplate planing dinghies. There is however no normal modern boat that can be sailed overheeled.

The thing to remember is that above the optimum angle of heel of any particular yacht the performance drops off quite sharply, and that to go beyond this angle will lose you races against those who understand and apply this knowledge.

This optimum angle of heel is far less than many people think. A number of years ago I drew attention to this matter of sailing upright in the first edition of my small book " Model Yacht Construction & Sailing " when the subject was not so widely understood as it is today. Since those days angle of heel has been scientifically studied, practised, and tests measured. It has altered the technique of modern sailing as well as design of hull and keel. To understand why we should hold a yacht up when beating closehauled to the wind, it is necessary to know how a yacht sails to windward by its hydrofoil keel appendage. The reader should study Figs. 1 and 2 with the explanation below.

Action of the hydrofoil keel

The modern keel owes its changing shape to aerodynamics, like almost every other improvement to our yachts in recent years, for water flow and airflow are very similar in action, allowing for the greater density of water. Some years ago, small gliders built exactly similar to aeroplanes were glided in a water tank, and their action observed through a glass window. The " airflow " effect and the " stall " were observed to be similar in general action. Nowadays airflow is still studied over miniature wings with small aluminium particles in the water.

Getting down to the fundamentals of fluid mechanics, it is found that at low speeds, air behaves in very much the same way as water, and if the velocity of water is multiplied by a factor of 13 it will give the approximate speed of air for the equivalent results. Therefore, the keel of a boat moving at five knots in water could be considered similar to a wing doing around 65 to 75 m.p.h. in the air. Let us visualise the keel as an " airfoil " on end working vertically downward, with a thrust sideways when it is dragged through the water at an angle of attack suitably small to prevent stalling, as happens when a yacht is beating to windward, Fig. 1. The action " on top " and at the " bottom " of this foil is the same in principle as in the case of an airfoil, Fig. 2; it has a low pressure " suction " lift on top, greater than the high pressure lift on the " bottom " of the foil. We can now work out how the " airfoil " or hydrofoil keel operates below the water's surface, pulling the boat to windward, against the sail's drive forward and to leeward.

The keel in action

In order to reach a particular target when beating to windward, the boat is sailed or pointed to that target above it, as seen in Fig. 1. The hull and keel crabs through the water at approximately 5 deg. on a modern yacht, as it slides away to leeward to the target, pulled there by the side and forward thrust of the sails. *The hull and keel are therefore attacking the water at this small angle of attack around 5 deg. as they progress.*

The water therefore reacts upon the " airfoil " keel

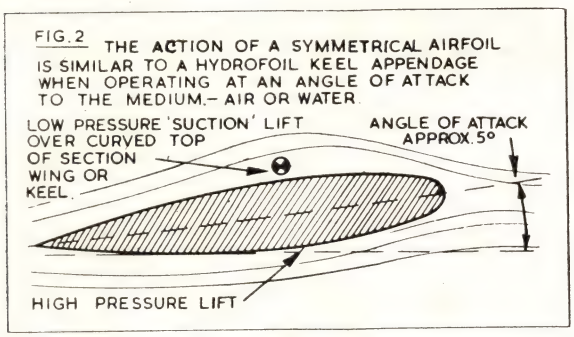


FIG. 2 THE ACTION OF A SYMMETRICAL AIRFOIL IS SIMILAR TO A HYDROFOIL KEEL APPENDAGE WHEN OPERATING AT AN ANGLE OF ATTACK TO THE MEDIUM.– AIR OR WATER
LOW PRESSURE 'SUCTION' LIFT OVER CURVED TOP OF SECTION WING OR KEEL
ANGLE OF ATTACK APPROX. 5°
HIGH PRESSURE LIFT

and provides a lift to windward away from the angle of attack, just as a wing reacts in air upwards when it is flying at an angle of attack but placed horizontally instead of vertically downwards. Incidentally, a sail acts in this way as an airfoil placed vertically upwards, thereby providing a lift away and forward from the wind. When beating to windward this drive is to leeward and forward, whereas the keel's lift is to windward and slightly forward, according to the section of the keel. We thus have two opposing forces which create heeling—see Fig. 4.

Aeroplane wing and keel

It is perhaps necessary to explain to some people who only think in terms of the early slow aeroplanes with flat or under-cambered bottoms to their wings and a cambered top, that a wing on a modern aeroplane often has a symmetrical section like a keel, for a symmetrical section can operate very effectively, *at low angles of attack*, without the conventional flat or undercambered bottom. Such a symmetrical section has a curved top, providing the low pressure " suction " lift, and the lower curved bottom gives a reasonably good high pressure lift, Fig. 2. I once sailed my 13 ft. dinghy with a symmetrical rigid wing as a sail quite satisfactorily in strong breezes. But here is the point: admittedly, a flat, or better still an undercambered, bottom to a foil (air or water) will give a superior lift at low speeds, and although an undercamber is not essential on a keel, it can help, and to that end certain trial yachts have had trailing edge flaps fitted to their keels.

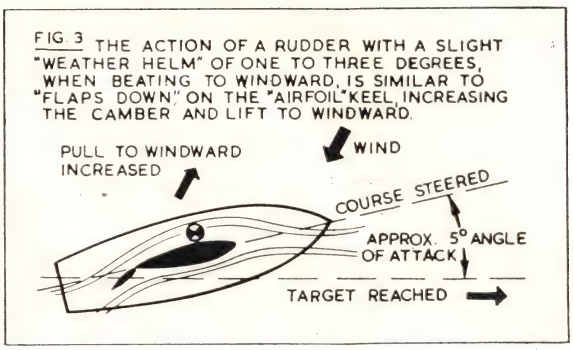


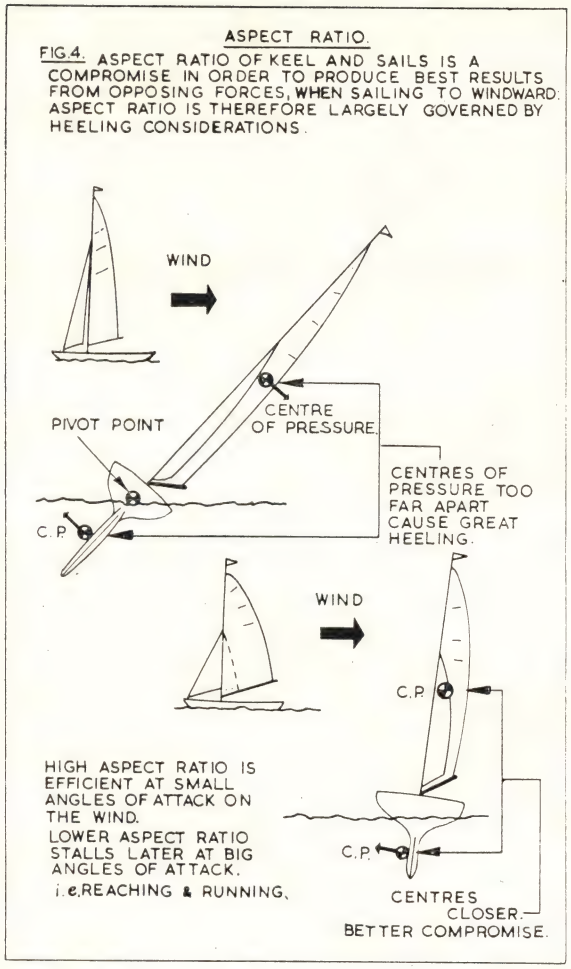
FIG. 3 THE ACTION OF A RUDDER WITH A SLIGHT "WEATHER HELM" OF ONE TO THREE DEGREES, WHEN BEATING TO WINDWARD, IS SIMILAR TO "FLAPS DOWN" ON THE "AIRFOIL" KEEL, INCREASING THE CAMBER AND LIFT TO WINDWARD.
PULL TO WINDWARD INCREASED
WIND
COURSE STEERED
APPROX. 5° ANGLE OF ATTACK
TARGET REACHED

Somewhat the same effect is obtained by arranging the modern yacht to sail with a slight weatherhelm to windward, of from 1 to 3 deg. Tank tests in America and on the Continent have shown this to be desirable, and as a result all racing men now rig their yachts to have a slight weatherhelm to windward. Fig. 3 shows how the rudder under these circumstances acts as a " flap down " to the hydrofoil, thereby giving a " slow flying " under-cambered surface to the keel when beating to windward only.

It now becomes obvious that a modern hydrofoil keel (and to a lesser extent the hull) must point reasonably vertically downwards, effectively to pull the yacht to windward in the water against the drive of the sails. If the boat is overheeled the keel presents a horizontal surface or foil pulling towards the water's surface instead of to windward.

Modern yacht and its keel

One of the big advances during the past few years in the modern yacht has been the more efficient keel appendage design, since designers have realised that the moderately deep hydrofoil type keel provides such a vital result towards windward sailing. Development of the hydrofoil keel is still advancing, *vide* Uffa Fox's latest twin, side by side, heavy steel, narrow, high aspect ratio hydrofoil keeled, 24 ft. L.O.A. sailing cruiser *Atalanta*, and the latest sharp-nosed keel on the outstandingly successful new 5-5 metre yacht *Vision*. In their own sphere both are excellent to windward. Designers now recognise that a more aerodynamically efficient keel is the secret of better windward sailing, allied to good low drag " airfoil " sails. They now " go deep " within reason


ASPECT RATIO.
FIG.4. ASPECT RATIO OF KEEL AND SAILS IS A COMPROMISE IN ORDER TO PRODUCE BEST RESULTS FROM OPPOSING FORCES, WHEN SAILING TO WINDWARD. ASPECT RATIO IS THEREFORE LARGELY GOVERNED BY HEELING CONSIDERATIONS.
WIND
PIVOT POINT
CENTRE OF PRESSURE.
CENTRES OF PRESSURE TOO FAR APART CAUSE GREAT HEELING.
C.P.
WIND
C.P.
C.P.
HIGH ASPECT RATIO IS EFFICIENT AT SMALL ANGLES OF ATTACK ON THE WIND.
LOWER ASPECT RATIO STALLS LATER AT BIG ANGLES OF ATTACK.
i.e. REACHING & RUNNING.
CENTRES CLOSER.
BETTER COMPROMISE.

with the keel, and cut down wetted surface on a shallower hull for racing craft. See Fig. 4. We can therefore say that for beating to windward the keel is the predominant influence, for the keel acts as the "airfoil" below the surface of the water, resisting and reacting to the leeward and forward drive of the airfoil sails above the water. Thus the application of aerodynamics now explains windward sailing, in lieu of some of the weird explanations, such as the squeezed pip and the wedge theories advanced in the olden days to explain this phenomenon. Aerodynamics however has done more, for it explains why we must not overheel if we want to win races. It has kil'ed the old idea of "sailing off or free," and heeling lee rail down and imagining we are going like the devil! No one in a good class ever wins that way nowadays.

Tests by water speedometers

A year or so ago the British Needle pitot tube water speedometer was fitted to a Victory class boat, a well-known one design keel boat racing craft. This proved how even experienced sailors can be deceived by the sensation of apparent speed that comes about by carrying too much canvas and overheeling. The boat concerned appeared to be going like a bomb, closehauled with full sail in a stiff breeze. In fact she was only doing 2½ knots to windward. When reefed, and heeling less, her speed was increased by nearly 1 knot. This class has been going for over 20 years and everyone was reported to have been under the impression that the boats liked a full spread in a hard blow for maximum speed. I noticed that *Vision* the latest 5-5 metre yacht at the time of writing, deems it worth while to have her lovely clean underwater lines pierced by the little pitot head of a water speedometer. *Bluebottle* was reported to have used one, and I have found a check on speed reefed and unreefed is useful on my "X" class one design keel boat by a similar water speedometer. It is acknowledged that a heavily heeled yacht slashing her way to windward, in cascades of spray, with no other yacht in sight to compare her speed by, can and does give a very false impression of speed, without an accurate speed check. I am now fitting up the 6-ton sailing cruiser which an American friend and I are trying out with my special battened rotating cantilever rig, with a water speedometer to verify various angles of heel and speeds. It is a pity we cannot make these measurements with free sailing models. It has been done with tank test models and full-scale by the Yacht Research Council.

(*To be concluded next month*)

Stockholm Museum Catalogue

I have received from Statens Sjohistoriska Museum, Meddelanden 1, Stockholm, Sweden, a copy of the catalogue of their National Museum. The upper of the two floors of the museum corresponds with our National Maritime Museum and, as may be expected of a maritime nation like the Swedish, it is of the greatest interest to ship lovers everywhere. The portion of the catalogue dealing with the Maritime Museum is well illustrated and I found it to be of absorbing interest. Ancient and modern ships are well represented and also figureheads, sterns, and various items of maritime interest. In one room is the base of the mizzen mast of the four-mast barque *Beatrice* ex *Routenburn*, with its fife rails and rigging, and also included is her beautiful figurehead.

Accompanying the catalogue was a book "Om Fartygsmodeller" (On Ship Modelling) by Gerhard Albe. In spite of my ignorance of the language I found it extremely interesting as the illustrations were so good and so comprehensive. Complete models, models in frame, views in the workshops showing models under construction, are all included. The period of the models ranges from the Egyptian, through the Elizabethan and Napoleonic, right down to modern times. Fuller particulars of these publications may be obtained from the museum.—**E.B.**

Miss Maureen Jackson, of Reigate, with a replica of the "Mayflower" at the National Boat Show at Olympia

THE NATIONAL BOAT SHOW

There can be little doubt that this fine show will become a hardy annual, says

EDWARD BOWNESS

LAST YEAR THE National Boat Show was an experiment; this year it is an institution. There can be no doubt whatever that it has come to stay. Going around the stands this year, I felt that the show was as much a hardy annual as the Motor Show. The only difference is that the Motor Show helped largely to build up the motor industry, whereas the National Boat Show is the outcome, and a rather belated one, of an industry already well developed and growing healthily.

There are so many sides to the boat industry, yachting, both racing and cruising, the cabin cruiser, with all its possibilities, fishing, fowling, and, for the handyman, the building and fitting out of his own boat, or even the conversion of a lifeboat to a cruiser or a houseboat. All these interests were represented and fully catered for at the show, so one can easily appreciate the enormous attraction it had for a large and growing section of the general public.

The possibilities of plastics

At the present time the effect of the introduction of plastics is being felt in many directions, not the least being the mass production of hulls in resin-bonded plywoods and the introduction of hulls moulded of glass fibre. The possibilities of this process can hardly be exaggerated, and bigger and better glass fibre hulls seem to appear at frequent intervals. Waterproof resin glues have greatly simplified the problem of building one's own boat, and a number of firms are now supplying kits of materials, and drawings and full instructions which are of the greatest assistance. To the model maker, especially if he aims to make models which are replicas of the prototype, there is nothing so helpful or so full of interest as to see boats under construction, and to compare them with the finished craft, and there was ample opportunity for this at the show. On the "Build it Yourself" stand, small boats were actually being built, and seeing the builders at work would certainly inspire many to go and do likewise.

There was a profusion of books and magazines for the small boat enthusiast, to say nothing of the numberless gadgets, ornaments and trinkets that are available, and this in itself is a good indication of the vigorous life of the industry.

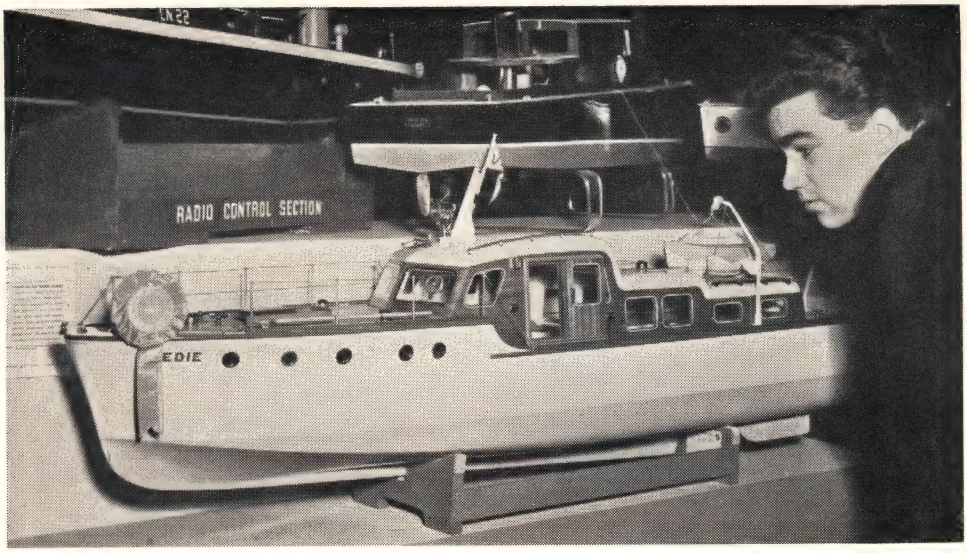
Use of models in shipbuilding

My particular interest in the show was in the models and the way they are made use of in shipbuilding. Models, of course, have long been used for the study of hull form by means of water tank experiments, but from early days they have been made showing the finished ship, as a guide to the builder and to show the prospective owner what she would be like. So it was natural that models should be an important feature of the show. Samuel White, Camper and Nicholson, Rowhedge Ironworks, to name but a few, showed some exquisite models of ships they had built. I was interested to see that Miller and Sons, of St. Monace, Fife, were displaying the model of a Seine and Ring net fishing boat, by Mr. P. A. Rumbelow, which was so much admired at the 1954 *Model Engineer* exhibition, where it was awarded a silver medal. The model of the *Mayflower* was a great attraction and the collection of contemporary shipwright's tools which surrounded its base added to its interest. As a model it was somewhat simplified, especially as to its rigging, and its poop and freeboard generally seemed rather high, but nevertheless it was very effective, and, of course, the project of sailing a replica of the *Mayflower* across the Atlantic fires the imagination.

Display of competition models

Probably the most attractive feature of the show was the display of competition models which was organised this year by *The Modelmaker*. There was not the variety of types that were seen in last year's show and historical models were absent, but there was a fine display of model yachts and cabin cruisers. Cash prizes were offered by the *Daily Express*, promoters of the show, and the competition gave an added interest to the collection.

The championship was awarded to a fine model of the Queen's barge made by F. D. Skinner, of Cardiff. In the



Malcolm Walsh admires the cabin cruiser designed and built by Mr. W. Morss, aged 70, of Tottenham

sailing models, the first prize went to R. Hayles for his *Adele*, a fine 10-rater. Guy Blogg's well-known *Manatee* was awarded second place and D. A. McDonald's *Emma Duck* third. *Edie*, a new and beautifully finished cabin cruiser by W. Morss, won first place in the power driven section. His *Moiety* is already well known to readers. The Mississippi sternwheeler *Roarin' Jenny*, first exhibited in last year's *Model Engineer* exhibition, was second, and a six-seater speed boat by D. S. Edwards, of Crawley, was third. In the radio controlled class, the winner was H. W. Neale, with a fine cruiser *Barbara Ann*, with G. A. Nurthen's well-known *Ione* second, and P. A. Cummins's *Trixie* third. In the non-working models D. S. Anthes's tanker *Beaconstreet* won first prize, with J. T. King's *Port Brisbane* second, and Mr. Marriott's miniature *Cutty Sark* third.

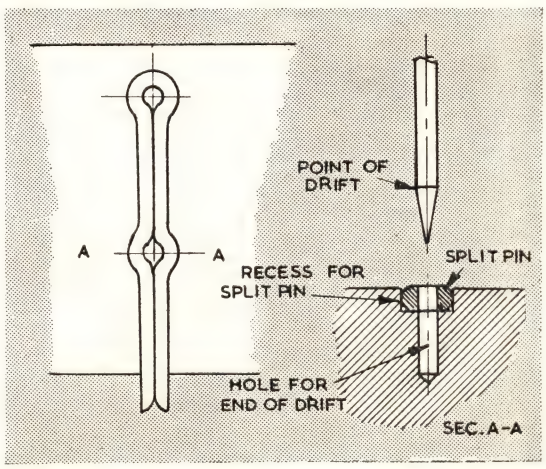
10/- hints...

RAIL STANCHIONS FROM SPLIT PINS—By G. H. W. Randell

Readers are invited to send hints to the Editor, Ships and Ship Models, 19/20, Noel Street, London, W.1.

I have been constructing an interesting model of a pleasure-cruising yacht from parts supplied by the Cardiff Model Supply Co. The making of stanchions was a problem until I hit on the idea of using split pins. These can be bought in many different lengths and sizes. The method I used is as follows : having decided on the number of rails (in my case two) I took a piece of square brass rod out of the scrap-box, drilled a recess to take the head of the split pin, made a channel to take the shank and then just a little below this another recess for the boss for the second rail. In the centre of this recess I drilled a hole to receive the end of the punch or drift which shapes the second boss. The drift is pointed as shown and, when driven down between the split pin, opens it out to fill the recess and so forms the boss. At the same time it leaves the hole to carry the wire for the rail.

It is just a matter of getting the fine point of the drift between the legs of the split pin, and a sharp tap with the hammer opens these out to fit in the recess prepared. I drew down a length of German silver wire for the rails and threaded it through the two holes and, with an electric soldering iron, soldered the lot. In my case two rails were sufficient but of course any number can be used. I used a small clamp to keep the split pin in place in the channel.



CASTLE CLASS FRIGATE

In his series, Drawings of Warships, NORMAN A. OUGH this month describes H.M.S. "Hedingham Castle"

CONTINUING THIS SERIES of detailed drawings of the ships of the Royal Navy, the one produced in this page and the following two pages shows a vessel with a modern profile and armament, typical of one of the four large classes that were built for escort duties during the 1939-45 war. These were the Flower, Castle, River and Loch classes; no fewer than 700 were ordered, mostly from shipbuilders not usually engaged in warship construction.

The two former classes were originally designated corvettes, the ships belonging to them having a speed of 16 to 16½ knots, while the two latter, the River and Loch classes, consisting of vessels having a speed of 20½ and 19½ knots respectively, were known as frigates. Nowadays the latter term is almost exclusively used for ocean-going escort vessels.

It will be seen from the drawing that the Castle class frigates do not have a true sheer, but that the deck edges follow three straight lines, the forecastle sloping downwards to a point near station 110, the midship section extending from this point to near 150 in a straight line, and from there aft the stern rises in a straight sheer. At some angles this feature is rather noticeable, and perhaps will be a little distressing to model makers, but it would be incorrect to ignore this in a model. The straight line construction was adopted to enable structural engineering firms the more rapidly to prefabricate sections of these vessels.

The original drawing, of which this is a reduction, is ⅛ in. to 1 ft. and, if a model is built to this size, it will be rather small for fitting with power, as the displacement (which is the same as the total weight) will be only about 4¼ lb. By increasing the scale to $\frac{3}{16}$ in. to 1 ft. the displacement would rise to about 20 lb. and this would allow power plant to be fitted to drive her for long periods. As only a single screw is required, and, as the real ships have a four-cylinder triple-expansion engine, a model of one of them would be a good subject for steam plant, as there would be a fair amount of head room for the cylinders.

H.M.S. *Hedingham Castle* is built, like the rest of the class, with merchant ship plating except that the seams are "joggled," a feature which is shown on the plating diagram. Some of the Castle class ships have ordinary "edge laps" to the plating seams; some have them joggled. If the latter, it can be imitated by soldering a narrow strip of tinplate along the appropriate edges of the "out" strakes.

Once the wood former is made, the hull would not be very difficult to build as the short lengths of the plates facilitate the work of soldering, and, their width being considerable, this will reduce the chances of distortion owing to the heat of the soldering iron. All the Castle class frigates have steel decks; there are no planked areas except on the compass platform. Those parts shown dotted on the drawing are covered with "Semtex" which has a matt surface and is usually painted dark green, the steel decks being painted dark grey or black. The chequered pattern of the footstrips on the quarter-deck, and elsewhere, is rather laborious to make in tinplate, but it gives so much character to the model that it is worth the labour of scribing out and soldering on narrow strips of flattened wire to represent it. A model of ⅛ in. scale should be built of tinplate no heavier than 0.006 in. to make the hull sufficiently light. It can be strengthened by thin transverse bulkheads, and by narrow flat frames soldered on internally.

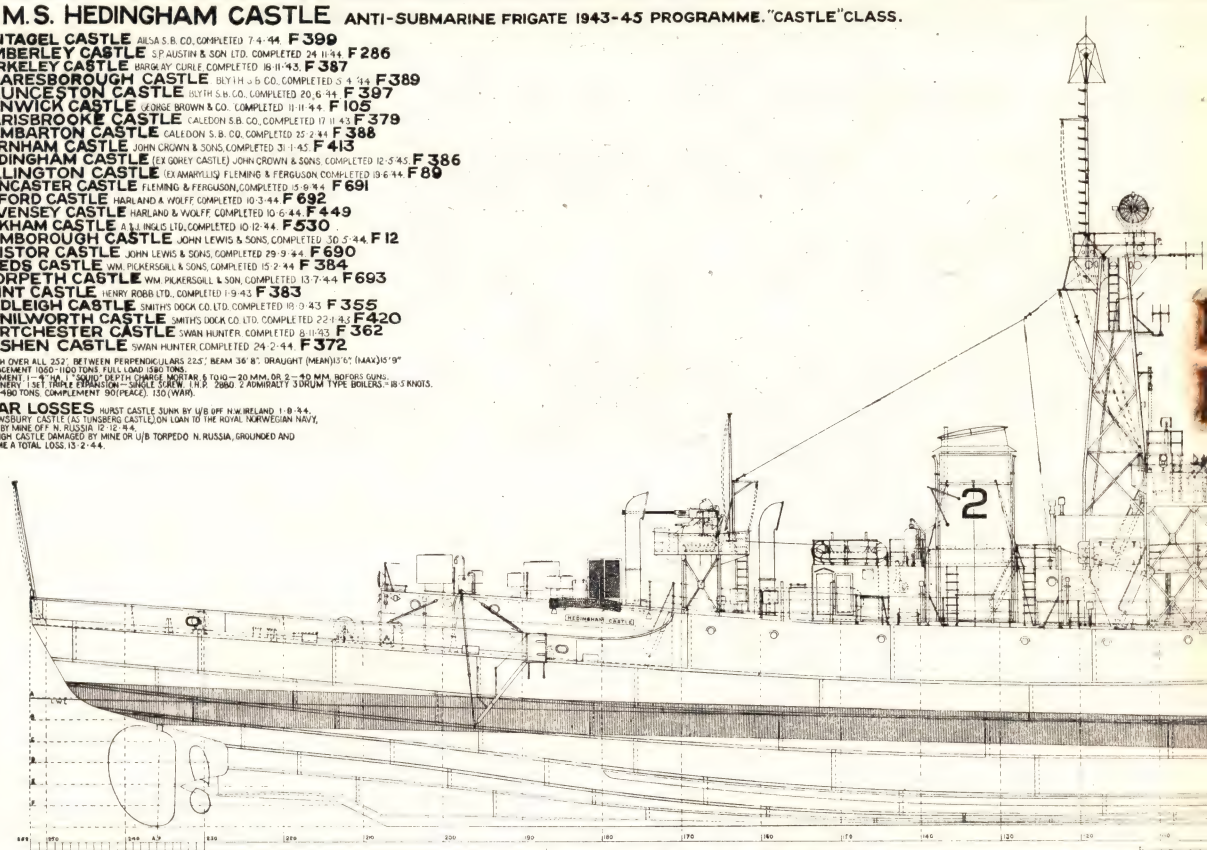
H.M.C.S. "Kincardine" (formerly H.M.S. "Tamworth Castle"), one of the Castle class frigates

H.M.S. HEDINGHAM CASTLE ANTI-SUBMARINE FRIGATE 1943-45 PROGRAMME. "CASTLE" CLASS.

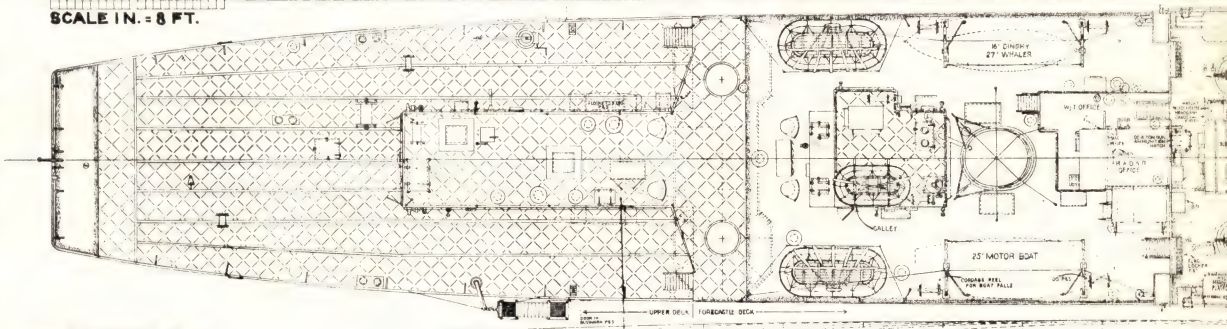
TINTAGEL CASTLE AILSA S.B. CO. COMPLETED 7-4-44. **F 399**
AMBERLEY CASTLE S.P. AUSTIN & SON LTD. COMPLETED 24-11-44. **F 286**
BERKELEY CASTLE BARCLAY CURLE COMPLETED 16-11-43. **F 387**
KNARESBOROUGH CASTLE BLYTH S.B. CO. COMPLETED 5-4-44. **F 389**
LAUNCESTON CASTLE BLYTH S.B. CO. COMPLETED 20-6-44. **F 397**
ALNWICK CASTLE GEORGE BROWN & CO. COMPLETED 11-11-44. **F 105**
CARISBROOKE CASTLE CALEDON S.B. CO. COMPLETED 17-11-43. **F 379**
DUMBARTON CASTLE CALEDON S.B. CO. COMPLETED 25-2-44. **F 388**
FARNHAM CASTLE JOHN CROWN & SONS. COMPLETED 31-1-45. **F 413**
HEDINGHAM CASTLE (EX GORLEY CASTLE) JOHN CROWN & SONS. COMPLETED 12-5-45. **F 386**
ALLINGTON CASTLE (EX AMARYLLIS) FLEMING & FERGUSON. COMPLETED 19-6-44. **F 89**
LANCASTER CASTLE FLEMING & FERGUSON. COMPLETED 15-9-44. **F 691**
OXFORD CASTLE HARLAND & WOLFF. COMPLETED 10-3-44. **F 692**
PEVENSEY CASTLE HARLAND & WOLFF. COMPLETED 10-6-44. **F 449**
OAKHAM CASTLE A. & J. INGLIS LTD. COMPLETED 10-12-44. **F 530**
BAMBOROUGH CASTLE JOHN LEWIS & SONS. COMPLETED 30-5-44. **F 12**
CAISTOR CASTLE JOHN LEWIS & SONS. COMPLETED 29-9-44. **F 690**
LEEDS CASTLE WM. PICKERSGILL & SONS. COMPLETED 15-2-44. **F 384**
MORPETH CASTLE WM. PICKERSGILL & SON. COMPLETED 13-7-44. **F 693**
FLINT CASTLE HENRY ROBB LTD. COMPLETED 1-9-43. **F 383**
HADLEIGH CASTLE SMITH'S DOCK CO. LTD. COMPLETED 18-3-43. **F 355**
KENILWORTH CASTLE SMITH'S DOCK CO. LTD. COMPLETED 22-1-43. **F 420**
PORTCHESTER CASTLE SWAN HUNTER. COMPLETED 8-11-43. **F 362**
RUSHEN CASTLE SWAN HUNTER. COMPLETED 24-2-44. **F 372**

LENGTH OVER ALL 252', BETWEEN PERPENDICULARS 223'; BEAM 36'-8"; DRAUGHT (MEAN) 13'-6", (MAX) 15'-9"
DISPLACEMENT 1060-1400 TONS FULL LOAD 1580 TONS.
ARMAMENT 1—4" HA; 1 "SQUID" DEPTH CHARGE MORTAR & TO 10—20 MM. OR 2—40 MM. BOFORS GUNS.
MAGAINERY 1 SET TRIPLE EXPANSION—SINGLE SCREW. I.H.P. 2880. 2 ADMIRALTY 3 DRUM TYPE BOILERS.= 18·5 KNOTS.
FUEL 480 TONS. COMPLEMENT 90 (PEACE). 130 (WAR).

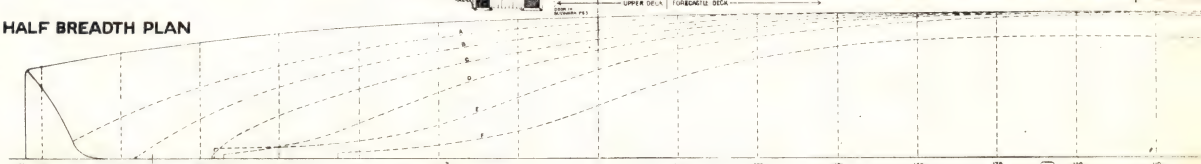
WAR LOSSES HURST CASTLE SUNK BY U/B OFF N.W. IRELAND 1-8-44.
SHREWSBURY CASTLE (AS TUNGBERG CASTLE) ON LOAN TO THE ROYAL NORWEGIAN NAVY,
SUNK BY MINE OFF N. RUSSIA 12-12-44.
DENBIGH CASTLE DAMAGED BY MINE OR U/B TORPEDO N. RUSSIA, GROUNDED AND
BECAME A TOTAL LOSS. 13-2-44.

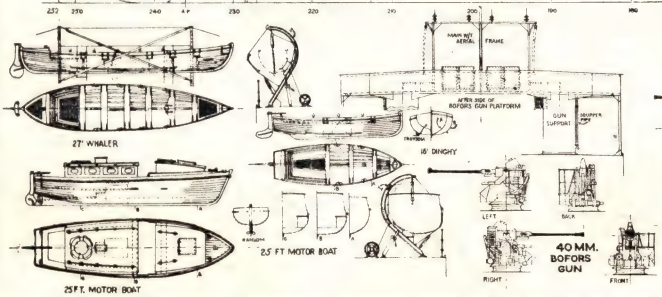


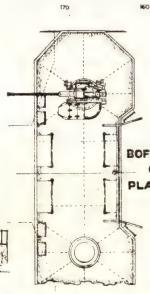
SCALE 1 IN. = 8 FT.

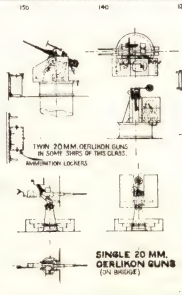


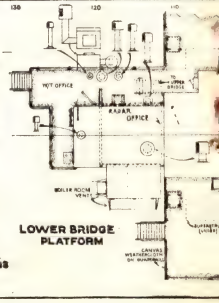
HALF BREADTH PLAN

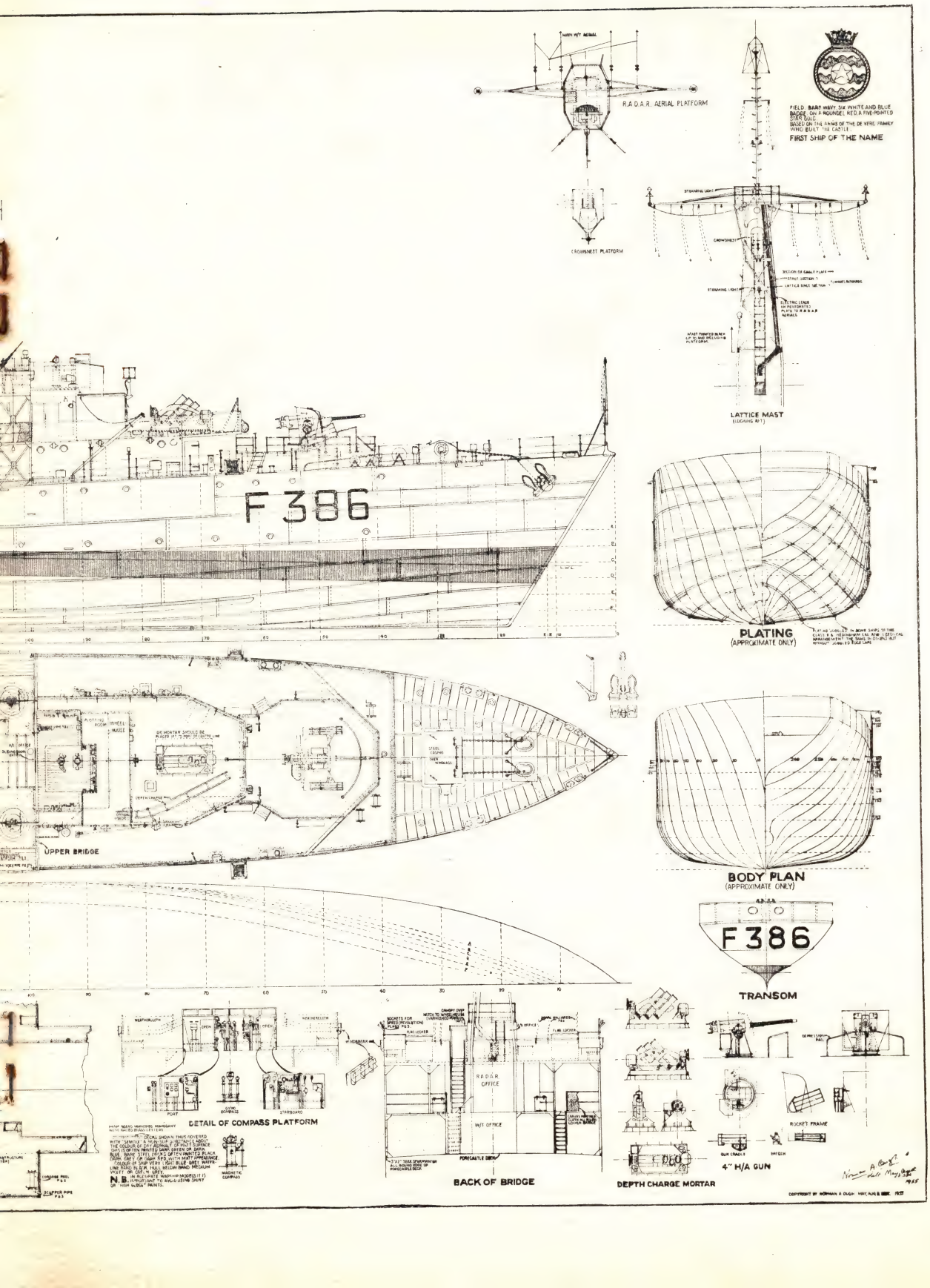











R.A.D.A.R. AERIAL PLATFORM
CROWSNEST PLATFORM
FIELD. BARE WAVY, SIX WHITE AND BLUE
BADGE. ON A MOUNCE, RED A FIVE-POINTED
STAR SABLE.
BASED ON THE ARMS OF THE DE VERE FAMILY
WHO BUILT THE CASTLE.
FIRST SHIP OF THE NAME
LATTICE MAST
F 386
PLATING
(APPROXIMATE ONLY)
UPPER BRIDGE
BODY PLAN
(APPROXIMATE ONLY)
F 386
TRANSOM
DETAIL OF COMPASS PLATFORM
BACK OF BRIDGE
DEPTH CHARGE MORTAR
4" H/A GUN
ROCKET FRAME

The author making adjustments to the radio in his A class cruiser

Making a start

First of a series in which H. C. ALDRIDGE will examine problems encountered by model yachtsmen who are experimenting with radio control

IT WAS IN the summer of 1951 that a friend gave me an old hull of a yacht which, even thirty years before that, could hardly be considered to follow any conventional design.

Nevertheless, its deckline measured about 40 in. with a beam of 8 in. and, as far as I was concerned, it was certainly going to be put to a most unconventional use. Previously I had made electric and diesel powered boats, but all I could make them do was to go forward or reverse and turn to the left or right. (I was always in trouble with my nautical friends for not saying port or starboard.)

With great expectations and no knowledge of yachts I proceeded to try to knock the hull into shape. It was planked and several of the seams had opened up a full $\frac{1}{16}$ in.; I was surprised as it had been built with steel pins which had well and truly rusted through; there were no mast or sails and I had to carve a mast from a piece of 1 in. square. My wife patiently made me a jib and mainsail working from a template of brown paper which I had cut to shape and which I assured her would look very smart when the sails were finished.

The object in mentioning this is to encourage those who feel unable to build a yacht themselves or have insufficient "ready" to buy a new one. There must be hundreds of these old yachts hidden away in attics which, with a little patience, could be made into quite suitable craft for radio control.

A few words will suffice to explain my method of waterproofing the hull: Smooth down with sand-paper and remove any dirt or grease. Stretch butter muslin over whole hull and fix in position with "Patent Knotting" or shellac varnish. The muslin should be stretched tight as the varnish is painted over it. Apply up to six coats of this patent knotting allowing sufficient time to dry between application of each coat. Sand-paper to a smooth finish after final coating. Paint hull with several coats of synthetic enamel paint.

When the day came for launching (without radio), I watched with delight the yacht move away from me and with some amazement I noted that the sharp end proceeded to go first. I had succeeded at little or no cost in possessing a yacht which I was determined to convert to simple radio control. I knew of no others who could help me with the radio side and there was nothing I could do except dig my hand in my pocket and buy a ready-made receiver and transmitter. A few simple makers' instructions were followed and the receiver operated a small permanent magnet motor which in turn made the rudder move to port or starboard (I am getting a little more technical now).

Lt.-Col. C. E. Bowden screws down the watertight cover to the unit in his A class cruiser, "Tentative II"

For the purpose of radio control I am of the opinion that yachts fall into one of the two classes:

(1) Marbleheads and other designs of a similar size.

(2) Ten-raters and A class.

This, of course, is only a generalisation as I have seen

a Marblehead which gives wonderful results when controlled in a manner which I am only going to advocate for the larger class boats.

The whole essence of successful radio control is simplicity. It is not necessary to have any knowledge whatever of wireless and only an elementary knowledge of electric motors to become a competent radio controller. There are, however, two limiting factors and these are the two types of receiver which are readily available on the market. Type one is basically the one-valve receiver which makes one electrical connection through the sensitive relay in the set. Type two is the multiple reed receiver which operates a number of relays—each of which can be made to serve some useful function in the model. From this it can be seen that with the first type of receiver the number of controls is strictly limited and that only by a modification of the receiver and transmitter can we hope to increase the number of controls from one to two or more.

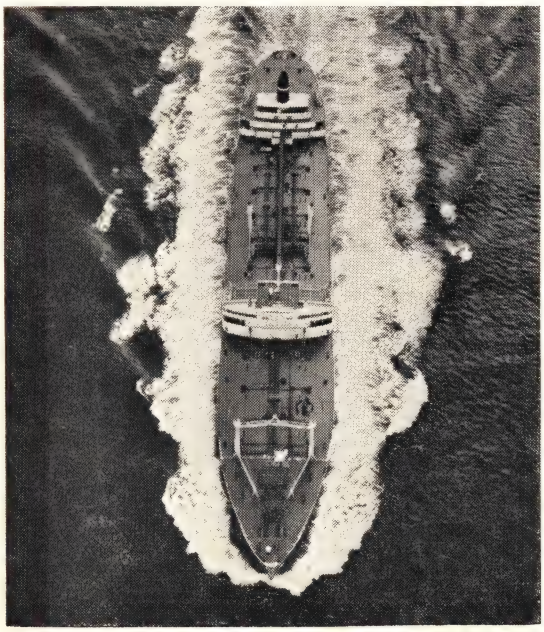
Grading into two classes

With the multiple reed receiver and transmitter, however, we can operate up to six controls, although four controls are all that are necessary for sailing the larger model yachts. This is where my grading of yachts into two classes takes place. The Marbleheads are not really large enough to accommodate the receiver and mechanism of the multiple reed system and of necessity must be controlled by the simple one-valve receiver. The Ten-raters and A class are large enough to accommodate two or more electric motors with their attendant batteries, in addition to the larger receiver, and for these I recommend using the reed receiver exclusively.

In subsequent articles I shall endeavour to describe in detail the different methods I have used to control my yachts over the past five years in the hope that this will encourage many more to take up this fascinating hobby.

Mr. J. C. Hogg prepares for action with his Marblehead

Wave formation: A tip for the modeller



THE PHOTOGRAPH REPRODUCED shows the wave formation around the 28,000-ton tanker *World Glory*—at one time the world's largest tanker—as she was proceeding at her full speed of 17 to 18 knots in calm water. It will possibly be helpful to the maker of scenic waterline models. Although the ship has a reasonably fine entrance she seems to throw up quite a wall of water on each bow and this almost merges into the secondary wave, which in a long ship is usually found amidships. The wake is well shown.

Of special interest is the wave formation outside the disturbed water around the ship. This seems to fan out in rhythmic waves which will ultimately fade away aft of the ship. These waves appear to coincide with the pulsations of the propellers. Some time ago in discussing with the master of a large tanker—he is also a ship modeller of considerable experience—a scenic water-line model of a tanker, similar to his own ship which he had made, he spoke of the hours he had spent in studying the wave formation around his own ship. He said he had the greatest difficulty in visualising what it would look like when viewed from sea level or from the viewpoint of the person studying the average model or picture.

FLEET Reviews

No. 26: The Eagle Oil

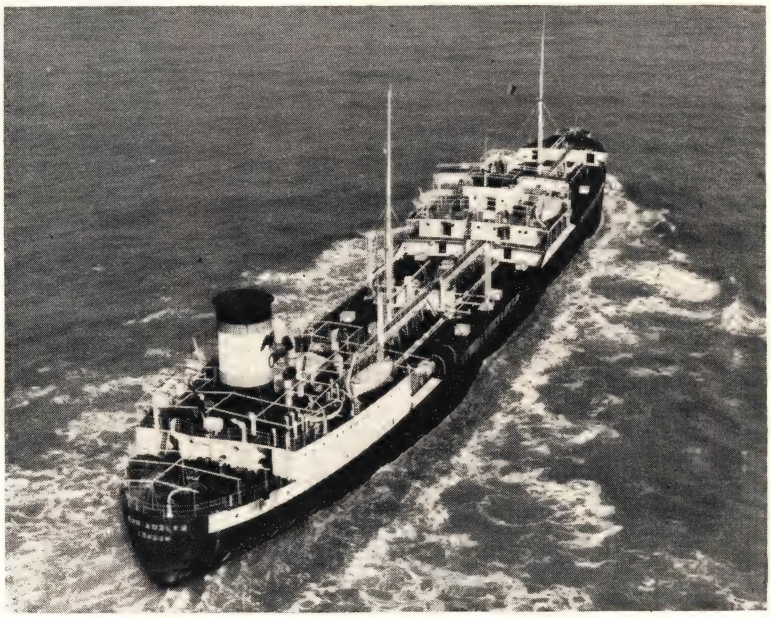
By LAURENCE DUNN

IN BRITAIN, the Eagle Oil & Shipping Co. Ltd., is primarily known for the ownership of an important fleet of oil tankers, but in South America the firm is known rather for the marketing and distribution of Shell petroleum products.

The Eagle fleet came into being in 1912 when oil production in Mexico was developing so rapidly that the parent company—the Mexican Eagle Oil Co.—found it necessary to provide transport for its oil to markets in the U.K. and South America. The first two vessels for the new firm, then known as the Eagle Oil Transport Co., were the *San Dunstano* and *San Eduardo*, both of 9,000 tons d.w. These were joined during the next two years by a further 14 ships, of which 10 were "giants," each with a d.w. capacity of 15-16,000 tons. The first of this famous group was the *San Fraterno*, of 1913, then the largest tanker in the world.

Important part in war

During both wars the Eagle fleet played an important part. In the first conflict much of the fuel used by the Royal Navy was brought from Mexico by Eagle ships, others of which served as fleet auxiliaries. Five were lost during that and 16 during the course of the second world war. Throughout the last decade, the fleet has been built up afresh, so that at December, 1955, the number owned by the Eagle Oil & Shipping Co. Ltd., and its newly-formed associate, Eagle Tankers Ltd.—whose ships bear the letter T, not O, on the funnel—total two small vessels employed in U.K. waters and 21 on deep sea tankers. These are mostly engaged in the South American and transatlantic trades, the latter chiefly Venezuela to U.K. and Eire. Some oil is carried from the Persian Gulf, while occasional North American and West African voyages are also made, usually as a result of small exchanges arranged with other companies.



An aerial view of "San Adolpho," built in 1935

"San Ambrosio," which was built in 1935

Coastal ships

The company's two smallest tankers are: s.s. *San Castro*, built 1928, 2,526 tons, and s.s. *San Dario*, built 1918, 1,137 tons gross.

The former, which is employed on U.K. and Irish Sea coastal service, was designed for operation on Lake Maracaibo and in consequence has a very light draught—only 13 ft. 7½ in. A single screw triple expansion engined ship, built by J. L. Thompson & Sons, she measures 305 ft. b.p. × 51 ft. beam. The *San Dario*, which has twin screws, was bought from the Admiralty in 1920 as the *Teakol* and converted from a motor vessel into a steamship. She has an overall length of 220 ft. and a breadth of 35 ft., and operates on the Thames Estuary under the colours of Shell-Mex & B.P. Ltd. Both vessels are alike in having a counter stern and a long trunk, flanked by harbour decks, which extends the full length of the space between fo'c'sle and poop. The *San Dario*, like other early Admiralty tankers of this type, has her bridge house right forward on the fo'c'sle, but the other ship has hers in the conventional position just forward of amidships.

& Shipping Co.

Pre-war and war built vessels

Of the larger tankers there are 15—of five types—which were built either before or during the last war.

	Ship	*Built*	*Tons*
turb. s.	*San Felix* ..	1921	13,164
m.s.	*San Adolfo* ..	1935	7,365
m.s.	*San Amado* ..	1935	7,316
m.s.	*San Ambrosio*	1935	7,410
m.s.	*San Eliseo* ..	1939	8,042
m.s.	*San Velino* ..	1944	8,210
m.s.	*San Venancio*	1942	8,181
m.s.	*San Veronico*	1942	8,189
m.s.	*San Virgilio* ..	1942	8,189
m.s.	*San Vito* ..	1943	8,163
m.s.	*San Vulfrano*	1942	8,167
s.s.	*San Wenceslao*	1942	9,813
s.s.	*San Wilfrido*	1942	8,911
turbo elec. s.	*San Leonardo*	1944	10,641
turbo elec. s.	*San Leopoldo*	1944	10,669

A post-war ship, "San Velino," built in 1944

The *San Felix* is the last of a group of six 18,000 ton turbine-driven tankers built for the company between the years, 1919-1922. These and the earlier group previously mentioned were the forerunners of the present day "super" tanker, each class in turn, when new, being the largest afloat. Later load line regulations increased the d.w. tonnage from 18,400 to 19,800. Of these only two survived the war, the *San Felix* escaping with severe torpedo damage in May, 1941. The other vessel, the *San Gaspar*, has since been scrapped. The *San Felix* was built by Armstrong Whitworth and measures 557 ft. in length o.a. × 69 ft. beam. D.R. geared turbines driving a single screw give her a speed of nine knots. Like others of this period she is of shelter deck design with the tops of the main tanks finishing one deck below the weather deck. She has a short raised fo'c'sle, a bridge of which the two lower decks are "solid" and a poop-house—also plated to the sides—which finishes short of the counter stern. To provide extra accommodation the after part of this structure was later raised one deck, and this also is plated flush with the hull. One boat is carried on the lower and one on the upper level, while between them is a vertical and very tall thin funnel. Despite her age and low speed, the *San Felix* still proves very satisfactory in service.

Survivors of sisters

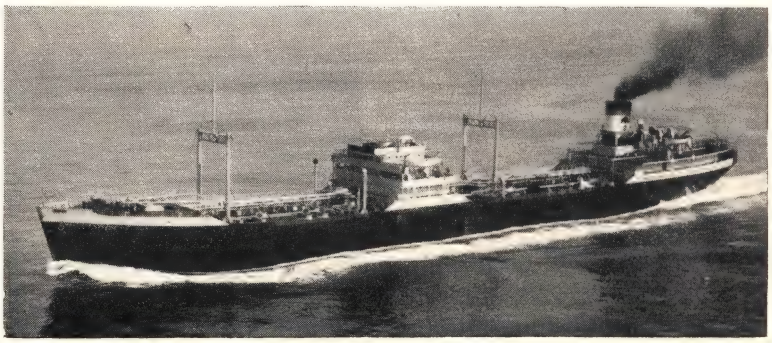
The three A class ships, which carry 11,200 tons d.w., were built by Furness, Blythswood and Hawthorn Leslie respectively, have a length o.a. of 464 ft. and a beam of 60 ft. The *San Amado* has Kincaid and the others Werkspoor machinery, which gives a service speed of about 12 knots. These are the survivors of a group of six sisters—the company's first motor ships—and are of conventional three-island layout, with two masts of which the foremast is placed one-third and the mainmast two-thirds way along the two wells. Between the bridge and masts are two pairs of kingposts—each pair stepped by a pumproom.

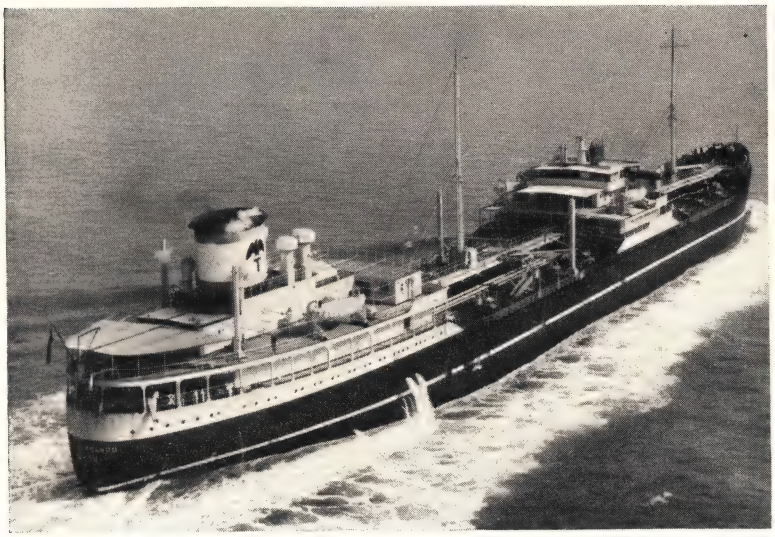
The Lithgows-built *San Eliseo*, *San Velino*, *San Venancio* and *San Virgilio* (all Hawthorn Leslie) and the *San Veronico* (H. & W.) are slightly larger, carrying 12,000/12,100 tons d.w. The first measures 478 ft. o.a. × 61 ft., the others 483 ft. o.a. × 59 ft. The last pair, *San Vito* and *San Vulfrano* (12,200 tons d.w.) were built by Harland & Wolff, at Govan and Belfast respectively and have an overall length of 479 ft., the beam being 61 ft. In basic design these six ships resemble the A class and indeed as regards appearance the *San Venancio* and *San Virgilio* (ex *Empire Neptune*) are almost repeats. The others, however, show major differences, the remaining Vs having twin masts which are stepped at the forward end of each well. The *San Eliseo* presents yet another profile, the bridge structure being further forward. This increases the length of the after well, a point which is accentuated by the placing of the mainmast further aft, at the break of the poop.

Post-war additions

Immediately after the war the company set about rebuilding the strength of its fleet and while awaiting the delivery of new tankers from the shipyards, purchased five vessels, three from the Ministry of War Transport and two from Shell. One of the three—already mentioned—was the *Empire Neptune*, previously managed by the firm, and which after her purchase in 1946 was renamed *San Virgilio*. In October, 1945, and February, 1946, two "Norwegian" type standard tankers were acquired, again ships which had been under Eagle management. These were the Furness-built *Empire Cobbett* and the Laing-built *Empire Airman*, which were renamed *San Wilfrido* and *San Wenceslao* respectively. Like the rest of this well-known type, they measure 503 ft. in length overall × 68 ft., beam and carry 14,800 tons d.w. Their appearance is hardly attractive,

"*San Silvestre*," *added to the fleet in* 1949





A splendid picture, taken from the air, of "San Fernando," 1953

though their tall bridge stanchions—two decks high—give a distinctive appearance. Although of similar design the two vessels differ in mast arrangement, the *San Wilfrido* having two twin and the *San Wenceslao* two single masts. Both have reciprocating machinery which gives a speed of about 11 knots.

The *San Leonardo* and *San Lorenzo*, both products of Kaisers' Richmond, Oregon, shipyard, are of the T2-SE-A1 design, of which several hundreds were built. They have an overall length of 523 ft., a beam of 68 ft. and are propelled by G.E.C. turbo-electric machinery which gives a speed of about 14½ knots. They were originally named *Bryce Canyon* and *Laurel Hill*, but in September, 1946, they were bought by Shell and renamed *Turbinella* and *Tresus*. Re-sold to Eagle in December, 1948, they were then given their present names. Colouring excepted, the appearance of these two ships has remained virtually unchanged.

Post war vessels

At the end of 1955 there were five post-war vessels in service, with one just launched and another nearly completed:

	Ship	*Built*	*Tons*
turbo elec. s.	*San Silvestre*	1949	10,953
turbo elec. s.	*San Salvador*	1950	10,802
turb. s.	*San Fernando*	1953	12,215
turb. s.	*San Florentino*	1953	12,215
m.s.	*San Patricio* ..	1955	10,711
turb. s.	*San Fabian* ..	1956	12,200
turb. s.	*San Fortunato*	1956	12,200

The *San Silvestre* was notable in being the first post-war ship built for the company and for her turbo-electric machinery, hitherto found only in their T2 type vessels. Delivered in July, 1949, she was joined in December of the following year by the similar *San Salvador*, also a product of the Furness S.B. Co. Both ships measure 537 ft. in overall length × 69 ft. beam and carry 15,900 tons d.w. They are fitted with G.E.C. machinery which takes steam from two La Mont boilers at 500 lb. p.s.i. and 800 deg. F. and gives a service speed of 14¾ knots.

For a number of years the company had been obliged to content itself with the purchase of second-hand tonnage, but in these two ships it was possible to incorporate many new ideas, both for increasing efficiency and improving the comfort of the crew. Their cargo space is divided into nine compartments, eight of which have the usual three divisions, while the remaining one has four, the latter being adapted with special pumping arrangements for the carriage of lubricating oils. Handsome ships of identical appearance, they have a slight rake on the funnel but none on the twin masts. The cruiser stern, it will be noted, has exceptionally slim lines.

The next two ships to be listed—*San Fernando* and *San Florentino*—belong to the associated Eagle Tankers Ltd., and were built by Cammell Laird. They measure 583 ft. o.a. × 69 ft. and have D.R. geared turbines and La Mont boilers, which at 7,500 s.h.p. give a service speed of some 14½ knots. These general purpose tankers, which carry 18,000 tons d.w., are similar to the 50 which have been built for Shell. An interesting point is the staggering of the aftermost kingposts, that on the port side being further forward.

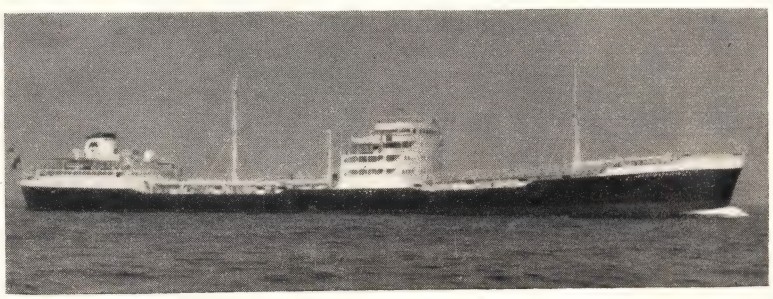
Differs from post-war fleet

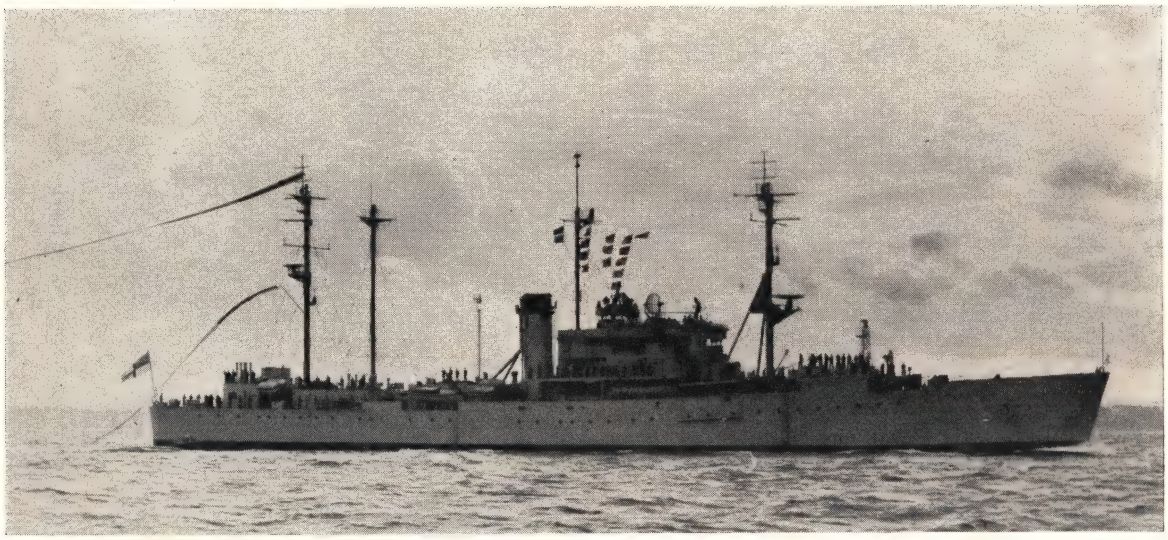
The *San Patricio* was delivered to Eagle Tankers Ltd., by the Furness yard in April, 1955. A 14-knot ship 496 ft. long, with a beam of 67 ft., she differs from the rest of the post-war fleet in being diesel driven. Her main propelling machinery comprises a Sulzer unit of 5,520 b.h.p. Distinguishing features are the built up bridge (with boat one deck higher) the curved top to the funnel and the fitting of bulwarks on the poop deck.

Of the remaining ships afloat, the *San Fabian* was launched by Smith's Dock Co. on 21 July, 1955, and was due for delivery on January 19. while the similar *San Frotunato*, launched by Cammell Laird on November 15, will probably be completed in April. In size and design these vessels will closely resemble the other F class units.

As far as new construction is concerned, four other turbine-driven tankers have been on order for a long time, these comprising a pair of 18,000 tonners, one each from Smith's Dock and Cammell Laird, and two of 31,000 tons d.w., one from Vickers Armstrongs, Barrow, and the other from Cammell Laird. These large ones are due for delivery between the middle of 1957 and February, 1958. Further orders were placed last autumn for four 32,000-ton and several 18,000-ton vessels, these to be completed in 1957-59.

Built last year, "San Patricio" is the latest addition to the fleet





H.M.S. "Boxer," with two long paying-off pendants, enters Portsmouth Harbour for the last time

Naval Photograph Club

BY P. A. VICARY

H.M.A.S. *Melbourne* (ex *Majestic*) light fleet carrier has been commissioned and will leave for Australia on February 24, from the Clyde. She is commanded by Captain G. C. O. Gatacre, R.A.N., and has two air squadrons aboard—Nos. 803 and 817—equipped with Sea Venom all-weather fighters and Gannet anti-submarine aircraft, respectively.

Surprise has been expressed at the decision to put all radar training ashore. It follows the paying off of H.M.S. *Boxer*, the seagoing radar training ship, which was the ship of Captain (D) Portsmouth whose pendant has been transferred to H.M.S. *Vigo*. In future radar training will be carried out at the two direction schools, H.M.S. *Dryad*, at Southwick, and H.M.S. *Harrier*, in Wales. The decision to transfer training ashore is a complete reversal of the policy adopted some years ago when it was considered desirable to carry out this work afloat. The *Boxer* has been operating in the role of radar training since 1947. Her long and happy career ended when she entered Portsmouth Harbour for the last time on 20 October, 1955, flying two long paying-off pendants, as our photograph shows.

The Admiralty has decided to scrap the cruiser *Phoebe*, sister ship to the *Argonaut* (illustrated last December). She is the fifth ship of the name and was completed in 1940. When Admiral Sir Guy Grantham, now C.-in-C. Mediterranean, commanded the *Phoebe* during the evacuation of Crete he made a signal to an escorting destroyer. It read: "I commend unto you *Phoebe* our sister . . . that ye assist her in whatsoever matter she may have need of you: for she herself also hath been a succourer of many and mine own self." Romans XVI, 1 and 2.

When the fleet carrier *Ark Royal* left Portsmouth recently, having embarked No. 800 Squadron of Sea Hawk fighters, and was proceeding down harbour towards the narrows at the entrance, four fighters were catapulted and—before heading out to sea—swept low over the masts of the dockyard tugs which held the forward tow.

The operations officer, Lieut.-Commander G. R. Woolston, R.N., said later that, by carrying out this operation, the flying programme could be advanced by at least one hour, for by the time the carrier reached the Nab Tower, where the aircraft normally take off, the planes had been airborne about an hour and were, in fact, ready to land again.

H.M.S. *Hardy*, the new a/s frigate, has been accepted by the Navy. She was laid down in 1953 and, although her hull is mostly pre-fabricated, has taken two years to complete. This seems a very slow rate of construction for a ship of the *Hardy's* size, as compared with the battleship *Dreadnought*, which was completed in one year and one day and proceeded to sea for trials in 1906. The *Hardy* has joined the 3rd Training Squadron at Londonderry.

The *Pelican*, one of our oldest frigates, has recommissioned for service on the South Atlantic Station. She is on a general service commission and will be away for about 12 months. H.M.S. *Superb* has commissioned for service as flagship in the East Indies Squadron. The *Pellew*, new a/s frigate, has joined the 2nd Training Squadron at Portland, and the *Whitby* has joined the 3rd Training Squadron at Londonderry, while the *Murray* has been added to the 2nd Training Squadron.

Another interesting Portsmouth-manned ship which has ended her career is H.M.S. *Nightingale*, a mining tender. For the past 25 years she has been attached to H.M.S. *Vernon*. The *Nightingale*, which was built at Portsmouth, has been in continuous service, with her sphere of operations extending as far as Scotland. Senior-commissioned Gunner C. F. Thorpe, C.O. of the *Nightingale* for the past year, ordered the following signal to be sent to the C.-in.C. Portsmouth: "It is with profound regret that *Nightingale* makes her last E.T.A. after a quarter of a century under your command." Admiral of the Fleet Sir George Creasy replied: "I am truly sorry to receive *Nightingale's* final E.T.A., especially as my connection with the ship goes back to her early days."

The film star schooner

Probably the most frequently-photographed sailing vessel in the world, " Pequod " is being prepared for a series of TV films. Peter M. Wood, who is technical advisor for the films, tells the story

YET ANOTHER FILM rôle is to be carried out by *Pequod*, the three-masted schooner which has had several changes of names in her career. She was towed from Cardiff to Falmouth on 31 October, 1955, to be fitted out for her new rôle.

Originally the Lancaster three-masted topsail schooner, *Ryelands*, 102.2 ft. × 22.9 ft. × 10.8 ft., she was built at Glasson Dock in 1887, and, after some foreign passages in her youth, she settled down in the coasting trade until 1931, when a motor was installed and her topsail yards were removed.

She was one of the few coasting schooners to continue in commission throughout and after the second world war, until she was sold in 1949 to Walt Disney for the film " Treasure Island." For this she was converted into an 18th century ship at Appledore, where false upper decks and a ship rig were fitted, and her name changed to *Hispaniola*.

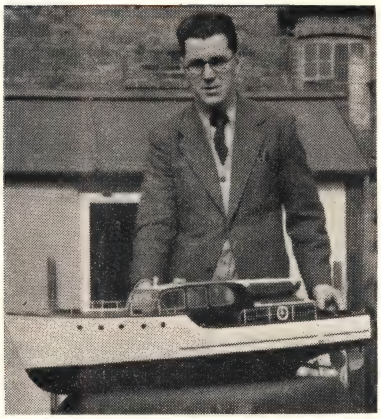
Personalities and " Pequod " at Cardiff: Left to right: Capt. J. Skinner, Capt. Harry Phillips, Mr. J. W. March and Mr. Peter M. Wood

" Dilipa," ex-" Pequod," ex-" Hispaniola," ex-" Ryelands," in dock at Falmouth after removal of the davits and boat-skids fitted for her whaling role. (Photos: P. M. Wood)

Subsequently, she was sold to Scarborough Corporation in this form, and was opened as a nautical museum and aquarium in the harbour there on 1 July, 1950. She attracted the interest of nearly three-quarters of a million holiday-makers, who paid for admission to see over the vessel, before she was sold again for the film version of " Moby Dick."

Her name was again changed, this time to *Pequod*, and she underwent an enormously expensive refit at Hull. A new engine, generators and accommodation were installed below decks, a bluff bow was built on, and a new false deck was added about 5 ft. above the original main deck. Unfortunately, her appearance was spoiled by the new masts and yards which were far too light, and consequently she was dismasted no less than three times in the Irish Sea, where the film was being shot in the poor summer of 1954.

After " Moby Dick " she was laid up in Cardiff Docks until the autumn of last year, when she was purchased by Sapphire Films Ltd., for a fraction of the £70,000 spent on her conversion to *Pequod*, and officially renamed *Dilipa*. She is now being reconverted into an early 18th century ship for a series of TV films about pirates. So *Ryelands* will rank as one of the most versatile and frequently photographed sailing vessels still in existence.



A smart cabin cruiser

R. FRANKLIN describes how he built his model and gives useful details of his rather unusual but practical method of hull construction

THE BUILDING OF *Gwen Eagle* has taken to date approximately 12 months. All that is left to fit are navigation lights, ensign, and the furnishing of the after cockpit, after the radio control gear is fitted in.

I decided to rib and plank this model for cheapness, although I had had no previous experience. The keel was made of $\frac{3}{4}$ in. beech about 1 in. deep and the ribs of $\frac{1}{4}$ in. beech. I don't know if this wood is considered particularly good for this work but it worked out all right for me. Having a very limited selection of tools, I decided on a form of building of my own without using either a mould or building board. The fixing of the ribs was as shown in the sketch.

Fitting the ribs

After the sections were screwed and glued to the keel the ribs were fitted—each one glued and screwed to the keel, the sections preventing any play. The planking, of course, covered the screws. The planks were of 1 in. and $\frac{1}{16}$ in. ply and were dowelled to the ribs. Incidentally, she was planked fore and aft.

After all the planks were fitted, any visible cracks were filled with Sealastik and then the whole hull covered with fine linen, glued on by Casco casein glue and smoothed by fingers whilst still wet. The space between the $\frac{3}{8}$ in. $\times$ $\frac{3}{8}$ in. sections and the bottom of the boat was filled with putty—which acted as ballast and helped to get her down to the required waterline. The hull was painted white and maroon with a black waterline.

Deck fittings from scrap

The deck was of $\frac{1}{16}$ in. ply, the planking marked with a pencil and then french polished. All the superstructure is of $\frac{1}{8}$ in. ply, stained mahogany and french polished. Deck fittings were made from brass and scraps of metal. The doors are made to open, the after hatch to slide, and the wheelhouse is fully furnished, the after cabin being left for radio control gear.

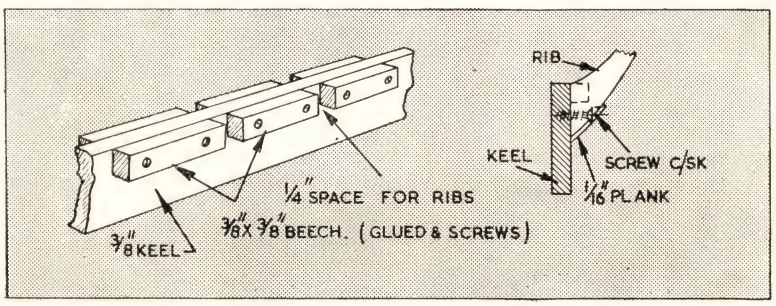
The motors, however, were quite a problem, as I did not particularly want speed. As we have no boating pool in my town I shall have to use the river. However, two Taycol 6 V motors geared down 4-1 and driving two $2\frac{1}{4}$ in. two-bladed propellers solved the problem. The accumulator is an Exide 6 V.: they certainly seem to give plenty of power. The accumulator and the motors are all fitted under the wheelhouse floor.

Despite what might seem a Heath Robinson type of construction, this method made a strong hull and the weight complete with accumulator is approximately 14 lb. and she can still afford to have a little more ballast before being down to the waterline.

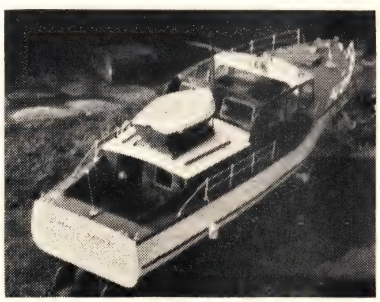
Messrs. William Osborne of Littlehampton, the builders of the prototype, were good enough to loan me the photographs of the wheelhouse interior and so made the model more realistic. Access to both wheelhouse and the after cabin is via the roof. Both of these are detachable and all the wheelhouse furniture is easily removed in case of any repairs.

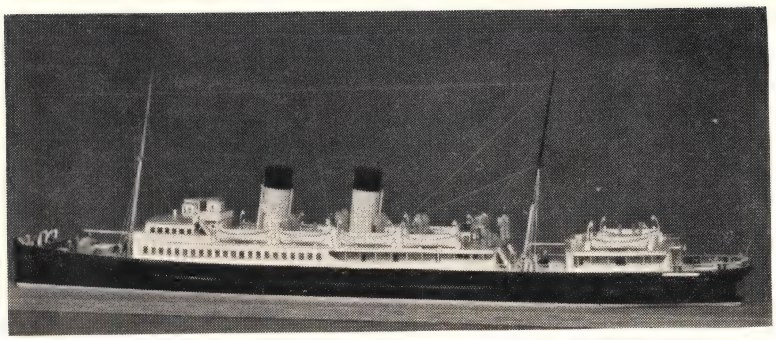
It is hoped that before very long the radio control gear will be ready and a trip up river attempted. She has been tested for balance, leaks, etc., and everything was perfect.

A diagram explaining the method of fixing the ribs



Stern view of "Gwen Eagle"





Cross-channel

A. C. YEATES describes a made of R.M.S. Hibernia Holyhead-Kings-

THE *Hibernia* is the second model of a set of four that is being made (to a scale of 16 ft. to 1 in.) for the purpose of illustrating the evolution and development of typical British cross-channel steamers over a period of about a century.

The service selected was that of the Irish Mail from Holyhead to Kingstown, and the period covered is from the ships built in 1860 for the City of Dublin Steam Packet Co. to the new *Hibernia* which has just been put into commission by British Railways on this service.

The *Hibernia* of 1921—the model of which is the subject of this article—was a vessel of 380.6 ft. length B.P. × 45.2 ft. breadth × 17.2 ft. depth with single reduction geared turbines of 16,000 shaft h.p., giving a speed of 25 knots.

Materials used in construction were: well-seasoned pitch pine for the hull, decks, deck housings, ventilator cowls, hatches, skylights and masts. Cedarwood from the slips inside cigar boxes for the side rail tops, bridge structure, deckhouse doors, etc., or where teak would generally be used in the ship herself. Pins and 5-amp fuse-wire or strands from flex for all side rails and stanchions. Broom bristles for stanchions and deck seat spars. Copper wire of suitable thickness for Welin davits, companion-way side rails, etc.

The hull was built up in horizontal layers representing: 1. The red boot topping. 2. The white line between the boot topping and the black hull. 3. The centre portion of the hull. 4. The main deck with shear. After the shear and deck camber had been formed on No. 4, sections 3 and 4 were then glued together and sections 1 and 2 were dowelled and screwed to the underside of 3, the screws being kept well within the area of the water-line plan.

Then the hull shape was carved, the flare forward and the stern sections being finished to templates. The fitting of the fenders followed both along the side of the hull and the upper fenders fore and aft, all being built up in two layers of thin pinewood and shaped to the hull, then glued in position and the outer surfaces of the fenders shaped to size when in position.

The surface of the hull and fenders was then papered, shellacked and again papered until about five or six coats had been applied and the surface had attained a high polish.

Deck houses and superstructure

Now followed the construction of the deck houses and superstructure, the former being built up with pine strips and fitted to the main deck. They were then removed and treated externally in the same way as the hull, enamelled white and completed with the appropriate windows and doors, the latter being made from prepared cedar strips. The deck houses were then secured in place and upon them the boat deck was fitted together with the main deck enclosure.

The latter was built up on a talc base 1/32 in. thick, strip wood sections being shaped and glued to the surface of the talc followed by divisions between the windows. When in place the sides of this structure were treated in the same way as the hull and deck houses, being shellacked and papered until a high polish was attained.

Then followed the building up in a similar manner of the closed-in portion of the boat-deck, the wheelhouse and bridge shelters above it, and for surface, treatment in the same way as the lower structure.

At this stage the boot topping and white line layers were removed, each being painted its respective colour—salmon pink and white. The hull was then enamelled black and the superstructure white and when the enamel had hardened, the white line and boot topping sections were replaced and screwed to the hull.

From the final shaping of the hull, the model was secured to a fixture which could be set 45 deg. on either side for convenience of papering, painting and fitting parts.

When the boot topping and white line had been fitted in place, the hull was then secured to a plain board for the remainder of the fitting out, so as to avoid having to handle the model itself in any way.

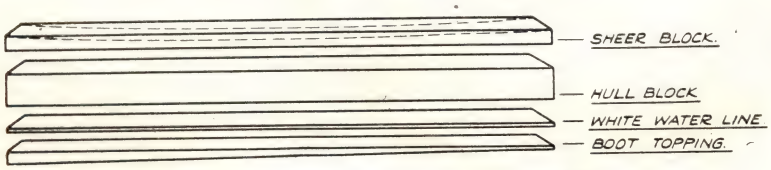
Funnels and deck fittings

Work then commenced on the funnels, skylights, companion ways and all the necessary deck fittings, including ventilator cowls, thermotanks, life-rafts, lifeboats, davits and bridge fittings and equipment. All ventilator cowls were carved from prepared sections of pine in the manner illustrated (Fig. 4) and all those above a certain size were hollowed out to the top of the vertical trunk. They were then treated with shellac in the same way as the hull and finally enamelled the appropriate colour.

All skylights were made up from pieces of pine and the frames carrying the glass were cut from thin card and glued to the top of the structure. The whole was then painted the appropriate colour and the glass windows applied in green enamel by means of a special stencil.

The lifeboats were carved and left

Fig. 1: *Series of blocks used for building up the hull*



steamer

water-line model which he of 1921. She was on the town Service

solid and with the exception of the top were treated with shellac. The keel, stem and stern post were made from thin strips of pine papered down to about 1/64 in. in thickness, shaped and glued in place rather deeper than required, and when thoroughly set were finally shaped to size in place.

The hull was enamelled white, leaving an untouched strip at the top, giving the natural varnished appearance of the gunwale. The top was then given a coat of white enamel and when this had reached the "tacky" stage, a small piece of linen handkerchief was carefully spread and laid over the top of the hull. When the enamel had hardened, the small linen top was then carefully trimmed to the shape of the hull and provided an excellent representation of a canvas cover.

The Welin davits were made and shaped from suitable size copper wire and these were then secured in place with the boats. The falls were made from wire and secured to the davits.

All side rails were made by using small pins as stanchions and 5-amp. fuse-wire or strands from flex as the side rails themselves. These were made up in the requisite sections in a specially-made rig for the purpose, consisting of a strip of wood 9 in. long with a true edge on one side on which is pasted a strip of paper. On this is drawn the exact position to be occupied by the side rails, the edge of the wood representing deck level. The strands of wire are tightly stretched over the lines on the paper and clamped at each end.

Preparing the stanchions

For the stanchions a number of pins are prepared as shown in Fig. 3. A card is cut to the shape and length of the portion of deck to be provided with rails and the exact position of the stanchions marked on this card, after which it is laid alongside the rig and the position of the stanchions transferred to the strip of paper on the rig.

Then the prepared rail stanchions are inserted under the wires at the places marked on the strip and with a needle in a comfortable holder

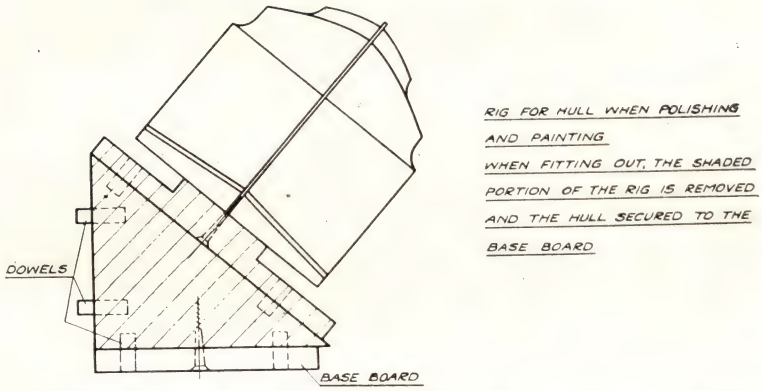

DOWELS
BASE BOARD
RIG FOR HULL WHEN POLISHING AND PAINTING
WHEN FITTING OUT, THE SHADED PORTION OF THE RIG IS REMOVED AND THE HULL SECURED TO THE BASE BOARD

Fig. 2: The rig for supporting the hull during glueing, polishing and painting

Durafix is applied at the points where the wire touches the stanchions, the former being slightly moved to ensure the Durafix being worked under it.

When this has been done and the first application thoroughly set, a second application is made, using only the smallest possible quantity of Durafix in each case. When this is thoroughly set, white enamel is applied along each stanchion, working the brush across the rails first up and then down and this will cause the enamel to spread slightly at each rail, giving an impression of the bulge in the stanchion through which the rail passes.

This assembly should be left for a day or two at least to harden, when the clamps can be removed and the whole length of rail taken out as a unit and bent as may be required to suit the shape of the structure or deck to which it has to be fixed.

Other equipment

Where multiple items of equipment are required, such as engine room telegraphs, davits, steering wheels, etc., it is preferable to build up such components on a piece of wood of suitable size for handling the job, so that when finished and the paint has dried, they can be cut off with a razor blade and transferred direct to the appropriate positions in the model.

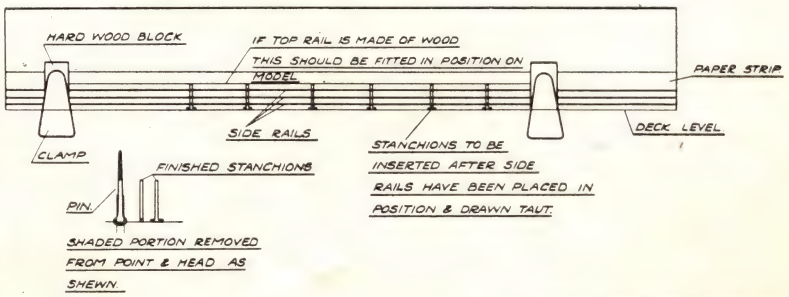
The column and centre piece of the engine room telegraph are made from wood papered up and shaped from small strips of pine and the unit is made up of six parts as shown in the sketch, the column and centre portion of the body in wood, the flanges cut from postcard and the levers from 5 amp. fuse-wire. The completely assembled unit is then painted with gold paint, with parts of the dial left white.

The steering wheels for the bridge, the after-navigating bridge and the stern were built up by making columns in the same way and for the wheel, a disc was cut from thin card the diameter of the boss and another piece of card punched, making a hole equal to the inside diameter of the rim of the wheel, the outside diameter being cut with a pair of scissors.

Two centre discs and two rims were prepared in this way for each wheel, one boss and one rim being lightly stuck to the base board and lengths of fuse wire cut to act as spokes and laid in position across the disc and rim and secured with Durafix.

When that assembly had set, then Durafix was again applied and the top boss and rim affixed. The entire wheel as it lay on the base board was then enamelled dark brown and left

Fig. 3: Details of the side rails and stanchions


HARD WOOD BLOCK
IF TOP RAIL IS MADE OF WOOD THIS SHOULD BE FITTED IN POSITION ON MODEL
PAPER STRIP
SIDE RAILS
DECK LEVEL
CLAMP
FINISHED STANCHIONS
STANCHIONS TO BE INSERTED AFTER SIDE RAILS HAVE BEEN PLACED IN POSITION & DRAWN TAUT
PIN
SHADED PORTION REMOVED FROM POINT & HEAD AS SHEWN

to harden, after which it was cut away from the board and mounted on its column when the other side of the wheel was enamelled. Finally, the complete unit—wheel and column—was cut from the base board and transferred to its position on the model.

Cargo hatches

The cargo hatches were built up from thin strips of wood and enamelled, and the insides painted matt black, and the hatch covers were made up from a series of thin strips of fairly hard wood papered down to 1/64 in. and then each fitted into positiin. These small covers are removable.

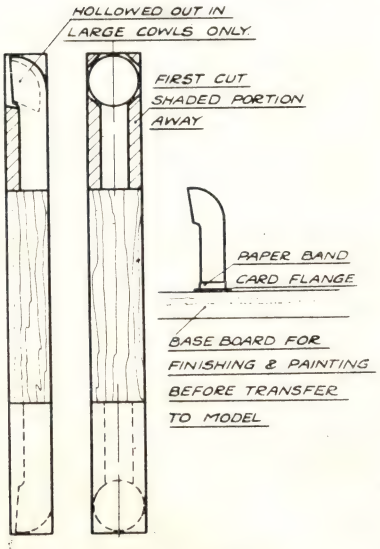
The anchors were built up on a base board in much the same way as other components but the flukes and fluke ribs were made considerably oversize and secured in place as shown in the illustration, and when the assembly had thoroughly set these were carefully carved in position, shellacked and painted black and when dry were cut from the base board and transferred to the model, the shackles being made from copper fuse-wire.

The masts were papered down from strips of pine and for the main rigging, silk thread (shade 75) was used, being the nearest approach to the colour of new steel hawsers.

Shrouds and rigging

The upper ends of the shrouds and fore and aft riggings were secured to each mast by a binding ring which was given a coat of enamel and when this had set the mast was stripped and set at the correct rig. A length of fine linen thread was secured to one

Fig. 4: *The ventilating cowls*


HOLLOWED OUT IN LARGE COWLS ONLY
FIRST CUT SHADED PORTION AWAY
PAPER BAND
CARD FLANGE
BASE BOARD FOR FINISHING & PAINTING BEFORE TRANSFER TO MODEL

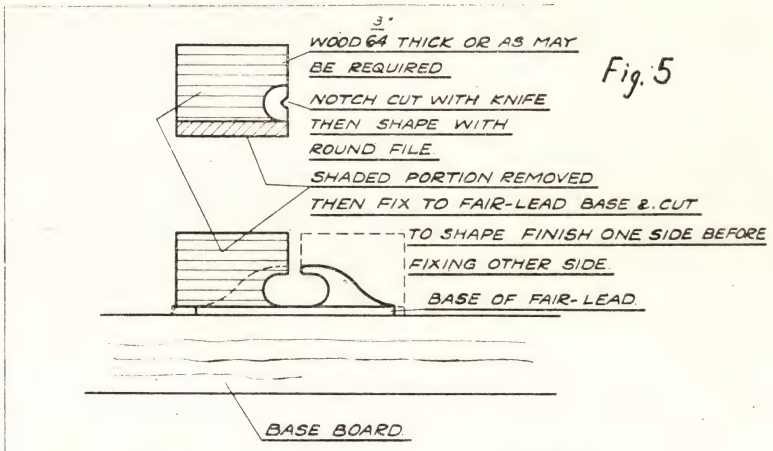

3/64" WOOD THICK OR AS MAY BE REQUIRED
NOTCH CUT WITH KNIFE THEN SHAPE WITH ROUND FILE
SHADED PORTION REMOVED THEN FIX TO FAIR-LEAD BASE & CUT TO SHAPE FINISH ONE SIDE BEFORE FIXING OTHER SIDE.
BASE OF FAIR-LEAD
BASE BOARD

Fig. 5

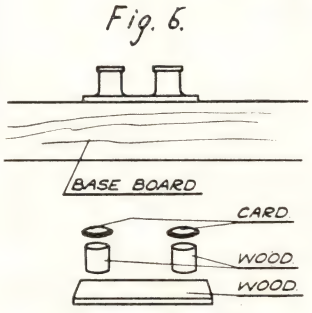


Fig. 6.

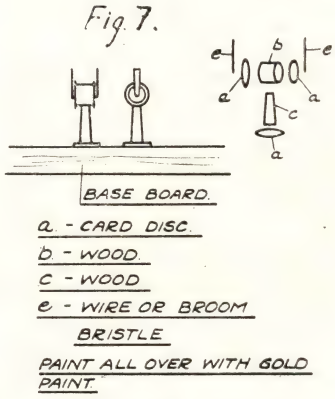


Fig. 7.

Fig. 5: *The fairleads.* *Fig.* 6: *Bollards.* *Fig.* 7: *Engine room and docking telegraphs*

of the eyes in the deck and threaded through the eye at the lower end of the shroud, taking three turns between the deck and the shroud. The last turn through the eye in the deck was taken outside the hull and with a $\frac{3}{8}$ in. nut as a weight was carried over an incline support.

This was carried out on both sides of the mast at the same time, so that all rigging was not only drawn taut, but with equal tension. The threads were then secured to the eyes and the three turns between the eyes bound together and enamelled and all loose ends carefully removed.

Signal halliards and the wireless aerial were all made from a single thread of nylon, broom bristles being used as aerial spreaders and the insulators on the aerial were made by applying two or three tiny drops of enamel at regular intervals along the nylon in the vicinity of each spreader.

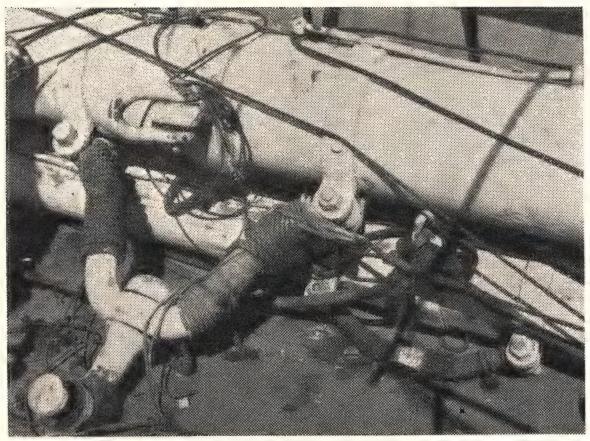
When the rigging was completed, the mast was enamelled in the appropriate colour.

Gratings in front of the saloon doors and by the steering wheels were made of thin sheets of brass and framed in cedar strip about 1/32 in. depth around the grating, and were then given one coat of shellac and very lightly papered.

To represent the openings in the grating, the top surface was marked with a pencil through a 25-mesh wire gauze used as a template, so that markings were dead true and in line with each other. The small sheet of gauze was fixed in a small wooden frame, one side of which was used as a straight edge, so as to ensure the markings being true and parallel with the sides of the grating.

All the companion ways were made up from thin hard wood papered down to about 1/64 in. in thickness. It was found, however, that the scale was too small to permit the correct distance between consecutive steps. Consequently the number of steps was reduced accordingly, resulting in a greatly improved appearance.

All handrails for the companion ways were made of suitable size copper wire and in the majority of cases left bright and shellacked to prevent tarnishing. Where necessary, teak rails were fitted.



Ship modellers' scrapbook

Fittings for the lower yards of square-riggers

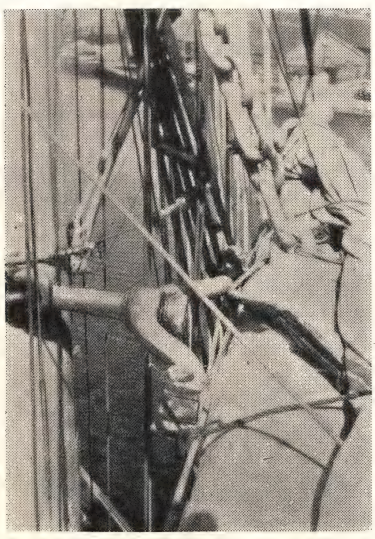
The lower yard of the "Cutty Sark"

IN ACCORDANCE WITH our intention to make SHIPS AND SHIP MODELS more useful to the ship modeller we have decided to revive this popular feature, not necessarily as a regular item but as space and opportunity permits.

In illustrating the various features and fittings in actual ships, photographs will be used wherever possible as, being taken from the objects themselves, they are quite obviously authentic and accurate and in many cases are clearer and more easily understood than drawings.

In this issue, a number of photographs are being reproduced which will be useful as amplifying the drawings and description of mast and yard fittings given in the issues of *Model Ships and Power Boats* for May and June, 1950, pages 55 and 69. Except where otherwise stated, the photographs were taken on the four-mast barque *Lawhill*.

Lower yard truss and chain tye of the "Lawhill"

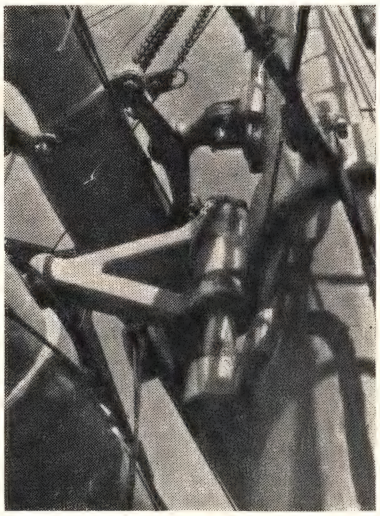


The lower yard

Photographs Nos. 1 and 2 show the swivelling truss by which the lower yard is connected to the mast. Photograph No. 1 was taken on the *Cutty Sark* when the yards were on deck prior to her restoration, while photograph No. 2 was taken on the *Lawhill*. In each case the weight of the yard is taken by the chain tye which is secured to the forward side of the mast between the trestle trees. In *Lawhill* the chain tye is shown in position, the lowest link being forged into a solid eye on the top of the yard. In *Cutty Sark* the tye is connected by means of a shackle and pin. The connection of the truss to the mast in *Lawhill* is again a solid eye forged into a solid eye on the futtock band on the mast.

More usual method

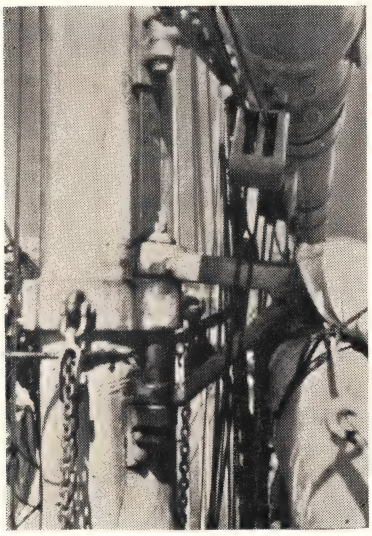
Evidently, her Dundee builders intended to make certain the yard did not come adrift. The more usual method is that shown on the yard of *Cutty Sark*, where the after end of the central pin of the truss has a drilled boss which fits between two lugs on the futtock band and is secured by a vertical swivel pin. From the photographs it will be seen that the arched portion of the truss which carries the yard, swivels on this central pin, this movement being controlled by the lifts which are connected to the ends of the yards by a runner block, enabling it to be tilted or "cock-billed." It will be noticed that on the *Lawhill* (photograph No. 1) the yard is swung round until it is on the sport shrouds.



Lower and upper topsail yards of the "Lawhill"

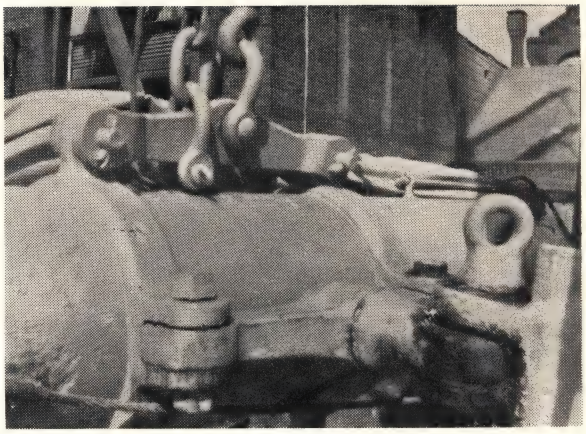
Upper and lower topsail yards

Photographs Nos. 3, 4 and 5 show the fittings for the lower and upper topsail yards. In addition to the usual rotation about a vertical axis, these yards have sometimes to be "cock-billed" to clear warehouses and obstructions on the quayside and provision must be made for this.



Left: The lower and upper topsail yards of the "Lawhill" showing the truss

Right: The mizzen upper topsail yard of the "Lawhill"



The weight of the lower topsail yard is taken from a band on the mast by means of a triangular shaped truss which is secured to it by a vertical swivel pin. The forward end of this truss is turned to form a spindle which fits lugs on the band around the centre of the yard. One of these can be seen on the left of photograph No. 3. The crane on photograph No. 4 has its bosses spread wider apart than those on photograph No. 3. It was probably taken on the main or foremast whereas No. 3 is on the mizzen mast.

On the *Lawhill* the lower and topmasts are in one so the band which supports the lower topsail yard truss is riveted to the mast in the position usually occupied by the lower mast cap. With the earlier and more usual type of mast, which was built in three lengths, the truss was carried from a fitting at the lower mast cap. This is shown in the drawing on page 55 of the issue for May, 1950.

Upper topsail yard

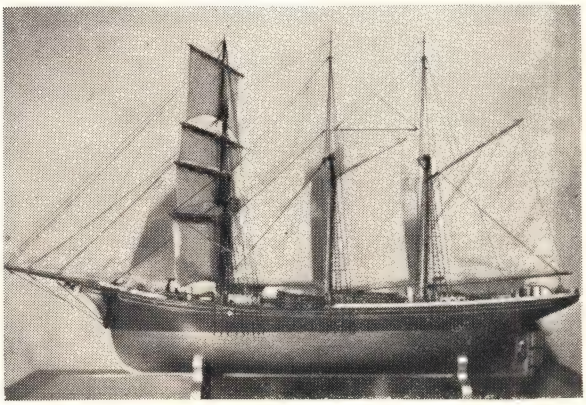
The truss for the upper yard was comparatively short, with a boss for a vertical pin on its after end and a turned spindle for the yard fitting on its forward end. The yard fitting is shown clearly in photographs Nos. 3 and 5 where it is seen bolted to two yard bands. The after end of the truss is secured to a block which works on a slide on the forward side of the mast. This fitting superseded the old-fashioned parrel which encircled the mast guiding the yard as it slid up or down the mast. The block and slide appears in each of photographs Nos. 3, 4 and 5.

From the photographs Nos. 3 and 5 the arrangement of the halyard is somewhat unusual. It would appear that from the normal sheave in the mast under the crosstrees, the chain halyard passes down and around a gin block shackled into the bridge bar on the top of the yard, up to a sheave fixed on the forward side of the mast, and then down to the yard to have its end shackled into the bridge bar alongside the gin block.

PORTUGUESE MODEL FOR PRINCE CHARLES

A FINE MODEL of a Portuguese barquentine has been presented to Prince Charles. It was brought from Portugal by President Francisco Higino Craveiro Lopes on the occasion of his recent State visit to London to meet the Royal family.

The model is that of the *Gazela Primeiro*, which is engaged in the codfish industry. It is the last vessel of this rig in Portugal, having been built in 1883 and rebuilt in 1923, when an auxiliary engine was installed, without, however, any modification of the sails or rigging. The uncommon appearance of this model has caused it to be greatly admired in various exhibitions. The preservation of the model has been greatly contributed to by the professional zeal of Mr. Luiz Antonio Marques, a model maker who is a member of a family long dedicated to the construction of models and miniatures of all kinds.



The presentation model of the "Gazela Primeiro"

Ships and Ship Models Mailboat

● **Letters of general interest on maritime matters are welcomed. A non-de-plume may be used if desired, but the name and address of the sender must accompany the letter. The Editor does not accept responsibility for the views expressed by correspondents**

SHIP MODEL AVAILABLE FOR COMPLETION

I am writing to ask whether you can put me into touch with anyone who could take an interest in the completion of a model ship.

This model was started a number of years ago by an artist by the name of A. Chidley, some of whose paintings of ships were left to me after his death. He also made this model ship in his spare time, but unfortunately was unable to finish it. Having been left with this model also, I naturally should not like to think of it going to anybody as a mere plaything, but should only be justified in selling it on the conditions that it passed into the hands of somebody who could take a lively interest in it, and, if possible, carry on with the work on it that was commenced some years ago. You will see by one of the photographs that it was made to sail on the water, and was apparently quite a success in this direction. Also the dimensions might be of interest to you and are approximately as follows: length 49 in., depth from deck to bottom of keel 14 in., and width 11 in.

I have had your issue of SHIPS AND SHIP MODELS for December and this is how I have come to write to you as, in this periodical, you invite people to write about any matters of interest concerning ships. However, there is one matter that I feel I ought to mention to you, viz., that there have been no plans left concerning the name of the ship that it is supposed to represent, although I do know that Mr. Chidley had a detailed knowledge of all the old sailing ships.

I trust I have made my position clear to you and that if there is anything that you consider worth while, you will be kind enough to make it known to me.

Torquay. H. C. O. BAWTREE.

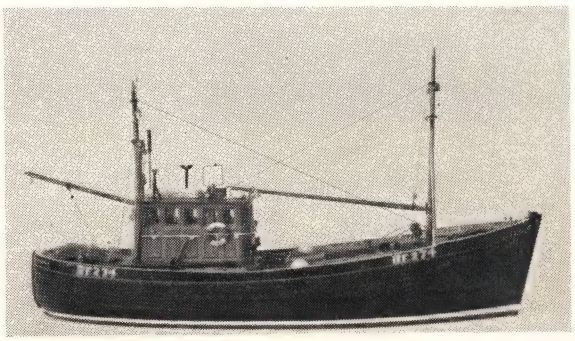
[The photographs, which unfortunately are not suitable for reproduction, show a well built, proportionate model of a 74-gun ship, late 18th century, of which the upper deck is still incomplete. Another photograph shows her sailing on a pond with royals and lateen mizzen. This was probably a temporary rig, as the upper deck bulwarks seem unfinished. The photographs could be loaned to anyone interested.—Ed].

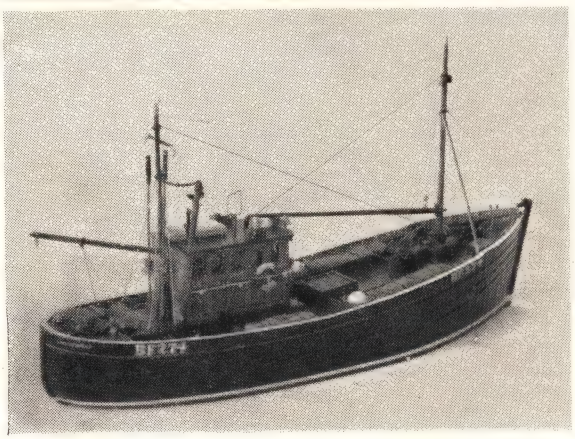
" Joyce II " is the boat made on a sea voyage. See " Boat building on board ship "

BOAT BUILDING ON BOARD SHIP

Joyce II, the boat in the picture, was built after a successful effort in building *Joyce I* as a test bed for a 15 c.c. petrol engine. She was built from your *Sea Maid* plans and is powered with an 1831 engine of Westbury design, which drives through a gear box arranged for reversing by radio control. All the work was done on board the m.v. *Border Minstrel* and trials are due shortly. The hull

Two views of the model of the Seine-net fishing vessel, " Co-worker." See " Waterline model of motor fishing vessel "



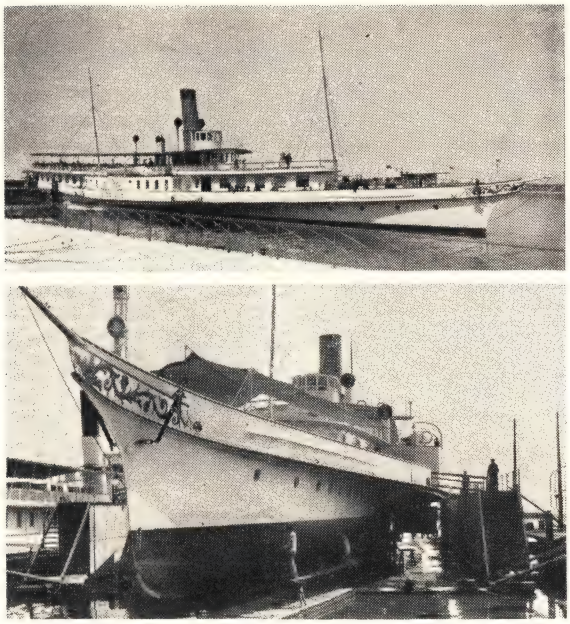


is diagonally planked at the bow and has a smaller nose block than that shown in the plan. She has a white hull with green underwater body. The cabin is in polished mahogany and has a pale green roof. The wheelhouse is fully detailed and working lights are fitted. When the photograph was taken, on board ship as you will see, it was too windy to put all the bits on.

South Shields. D. LOVELY.

INFORMATION REQUIRED

I wish to make a small solid scale model of a R.N. minesweeper; the type I have in mind is the latest coastal



Above: P.s. "La Suisse," at Evian. Below: P.s. "Simplon" in the floating dock at Ouchy. See "Switzerland's paddle steamers"

type of the Coniston class. Some of these are attached to various R.N.V.R. divisions.

I don't seem to be able to get a kit or even a plan of this ship anywhere, and I am wondering if you, or any of your readers, can help me at all.

Liverpool, 13. G. S. STEWART.

WATERLINE MODEL OF MOTOR FISHING VESSEL

I enclose photographs of a fishing vessel I have just completed which may be of interest to your magazine. The vessel is a local seine-net fishing vessel *Co-worker* B.F. 274, built by the Macduff Engineering and Shipbuilding Company, Macduff. She has an overall length of 52 ft. and is driven by an 88 h.p. Kelvin diesel engine. The model scale is 1 in. to 4 ft.

In the model the hull was constructed from a solid block of scotch fir, the bulwarks being dug out from the same block. The wheelhouse, which was built up, together with the pond boards, hatch, winch, etc., were made from obeche. The fishing net, on the stern platform, of course, was obtained from a nylon hairnet dyed green. Altogether the model took two months to build.

I hope these details and photographs may be of some use and interest to you. The photographs of my model were taken before it was mounted and enclosed in a case, as I thought it would be much easier to photograph at the required angles.

May I take this opportunity to praise your magazine SHIPS AND SHIP MODELS for its interest and very fine reading. I must say I look forward to receiving it each month. I was very pleased to note that Laurence Dunn is giving the merchant service a share of his centre page drawings, and hope that they will continue to get an equal share with the Royal Navy in future.

Macduff. ALASTAIR E. D. PATERSON.

SWITZERLAND'S PADDLE STEAMERS

The letter from Mr. D. W. Greenslade printed under "Mailboat" in your issue for December was of particular interest to me, especially that part dealing with the paddlers on the Lake of Geneva. In fact, I wondered if Mr. Greenslade had not been reading the article I had contributed to *Trident* and which appeared in that magazine in March last. If so, his reference to eleven paddlers on that lake is short by two; and if he has not read the article, then I think he will be interested in seeing the photographs reproduced therewith.

Cannes. JOHN W. HARRIS.

[We publish these photographs as some of our readers, who may have been intrigued with the wide sweep of the fore-deck back to the paddle-boxes shown in the photographs in the December issue, will be glad to have some information as to their construction. In the lower photograph the supporting struts, becoming longer to suit the increased overhang as one goes aft, may be seen in the shadow. The blades of the paddle wheels are also shown in silhouette.—Ed.].

RESTORATION OF THE "FOUDROYANT"

In fairness to a grand set of men please make the following correction to David Gunston's article on the *Foudroyant* This ship was not repaired after the late war by dockyard shipwrights.

The work which entailed partial rebuilding of the bow and stern, the poop deck and bulkhead, and the quarter deck and forecastle bulwarks, was done afloat in the stream, much of it on stages rigged over the side, and often under most uncomfortable conditions.

Lieut. M. O'Loughlin, R.N.V.R., was chief officer.
Mr. V. Marshall, foreman shipwright.
Mr. I. Bergsavnet, shipwright and boatswain.
Mr. E. Hutchins, shipwright.
Mr. J. Ashdown (late), R.N., wood carver.

It is to the loyalty, hard work and skill in craftsmanship of these men and their mates that we owe the preservation of the *Foudroyant*.

Dunkeld. HAROLD WYLLIE.

In this picture taken on board "Foudroyant," Col. Wyllie is in the back row wearing cap, Lieut. O'Loughton is on his left and M. V. Marshall is on the end of the front row wearing cloth cap. See "Restoration of the 'Foudroyant'"

News from the clubs

MODEL YACHTING ASSOCIATION

The venues for the M.Y.A. championships in 1956 are as follows:

A Class	.. .. ..	Gosport
10-*rater*	.. .. ..	Fleetwood
M Class	.. .. ..	Dovercourt
36-*in. Class*	.. ..	Hove

The dates will be announced later.

Hon. General Secretary: L. W. MOLE, 35, Strode Road, Forest Gate, London, E.7.

THAMES SHIPLOVERS' AND SHIP MODEL SOCIETY

At the model makers' meeting Mr. Ewart C. Freeston gave an interesting talk on the building of his three models of inshore fishing craft. At the shiplovers' meeting, Mr. Ambrose Hunter, managing director of Cook, Welton and Gemmell Ltd., gave an interesting talk on modern trawlers. The meetings for February are as follows: Friday, 10, at East Holborn Library, Mr. W. Honey will talk on the rigging of sailing ships, and on Friday, 24, at the Baltic Exchange, Mr. H. Neddon will describe his recent trip round the world on the *Southern Cross*.

Hon. Secretary: ERIC C. RANDALL, 24, Winter Avenue, East Ham, London, E.6.

THAMES GROUP MARINE MODELLING SOCIETY

On February 25 at the "King of the Belgians," Gravesend, Mr. Norman A. Ough will give a talk on "Ship Model Making."

Hon. Secretary: A. O. POLLARD, JNR., The Mission House, Bawley Bay, Royal Pier Road, Gravesend, Kent.

BIRMINGHAM SHIP MODEL SOCIETY

The following meetings will be held at 82, Hagley Road, Edgbaston, Birmingham: Friday, February 3, annual general meeting; February 17, Talk "Ship Salvage and the Sea" by Mr. F. A. Pariser.

Hon. Secretary: CAPT. F. J. MARSDEN, 15, Cartland Road, Birmingham 14.

BRISTOL SHIPLOVERS' SOCIETY

The following events have been arranged: Tuesday, February 7, "New Ships for the New World," a Cunard Line film. 21, "Beaverships," a Canadian Pacific film. Meetings are held at the Bristol Sailors' Home, Queen Square.

Hon. Secretary: F. C. WATTS, 7, Fifth Avenue, Northville, Bristol, 7.

BRISTOL SHIP MODEL CLUB

The February meeting will be held at 7 p.m. on Tuesday, 14, at Legion House, Portland Square, when Mr. F. Shipsides will speak on nautical sketching.

Hon. Secretary: A. RALLS, 8, Kenmore Crescent, Filton, Bristol. Tel.: Filton 2148.

CLYDE SHIPLOVERS' AND MODEL MAKERS' SOCIETY

The following meetings will be held in February: Monday, 13, Mr. Graham E. Langmuir will give an illustrated talk on "The Macbrayne Fleet" at the Kelvingrove Museum and Art Galleries. Monday, 27, is club night. Mr. Thomas Reid will give a talk entitled "Ship Modelling—My Methods." Meeting held at the Institute of Engineers and Shipbuilders.

Hon. Secretary: DAVID J. CALDERWOOD, C.A., 89 Gibson Street, Hillhead, Glasgow, W.2

HAMMERSMITH SHIP MODEL SOCIETY

Representatives of the Metropolitan Ship Model Societies were among those who attended the society's Exhibition and Guest Night at Westcott Lodge. The Mayor of Hammersmith, Councillor T. A. Keating, was welcomed by the chairman, Mr. W. Gay, and was "piped aboard" in true naval fashion. Afterwards he made a short tour of the models on show.

The February meetings will be held at Westcott Lodge, at 7.30 p.m. Tuesday, 7. "Any Questions?"; 21, "Draughts and Plans at the National Maritime Museum," by Mr. R. L. Tucker.

Hon. Secretary: H. J. COSTER, 98, Craven Park, Harlesden, N.W.10.

WEMBLEY SHIP MODEL SOCIETY

Mr. C. Seston, 8, Albert Road, Southall, was elected secretary at the society's annual general meeting. Chairman is Mr. Ewart C. Freeston.

THE SHELLBACKS CLUB

This is organised as a class at Gravesend Technical College and meetings are held on the second Wednesday in each month in "Mayfield" Annexe, Pelham Road, at 7.30 p.m. Membership is open to all over 15 who are interested in the sea and ships.

The organiser is: MRS. N. COUGHLAN, Deena, Thong, Shorne, nr. Gravesend.

IPSWICH NAUTICAL RESEARCH SOCIETY

The next meeting will be held on February 16, at 7.30 p.m. at Diocesan House, Tower Street, when a talk entitled "Early East-Coast Yachting" will be given by Mr. Frank Hussey, historian of the Royal Harwich Yacht Club.

Hon. Secretary: H. W. MOFFAT, 8 Parkside Avenue, Ipswich.

LIVERPOOL NAUTICAL RESEARCH SOCIETY

At the February meeting, which will take place on board the *Landfall*, Canning Dock, Liverpool, on Thursday, 9, there will be an exhibition of marine photography by Stewart Bale Ltd.

Hon. Secretary: A. N. RYAN, M.A., 28, Exchange Street East, Liverpool 2.

NORFOLK NAUTICAL RESEARCH SOCIETY

The meeting for February will be held at The Sailors' Home, 25, Marine Parade, Great Yarmouth, on Thursday, 16, when Mr. Charles Green will give a talk on "Early Clinker-built Boats in East Anglia."

Hon. Secretary: JOHN F. C. MILLS, Opie House, Castle Meadow, Norwich. Tel.: Norwich 23241.

WOLRD SHIP SOCIETY, BELFAST BRANCH

Tuesday, February 21, is members' night. The meeting will be held at 7.45 in the Canadian Room of the Overseas League, Wellington Place, Belfast.

Hon. Secretary: B. L. DEVENISH-MEARES, 30, Wandsworth Road, Belmont, Belfast.

SOUTHGATE MODEL YACHT CLUB

The post of hon. secretary has been taken over by Mr. M. D. Jeffrey of 250, Colney Hatch Lane, Muswell Hill, London, N.10, who will be pleased to supply further particulars of the society's activities.

WORLD SHIP SOCIETY, MERSEYSIDE BRANCH

At the meeting at the Incorporated Accountants Hall, Fenwick Street, Liverpool 2, on February 24 at 7.30 p.m., Mr. George Dickinson will talk on the art of drawing ships.

Hon. Secretary: CRAIG J. M. CARTER, 16, Welwyn Avenue, Birkdale, Southport, Lancs. Tel.: Southport 78203.

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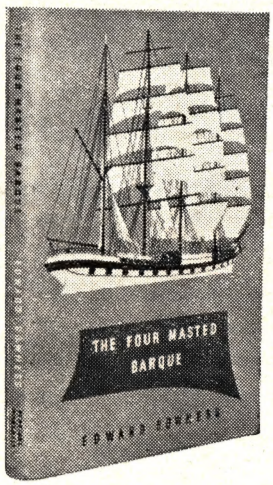

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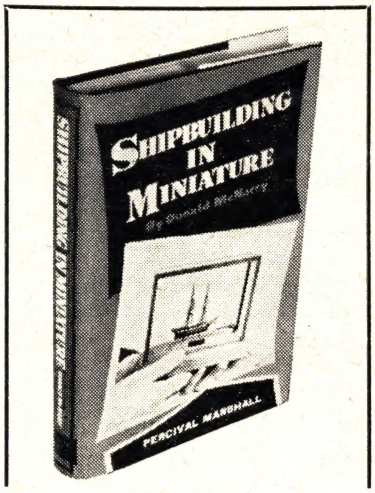

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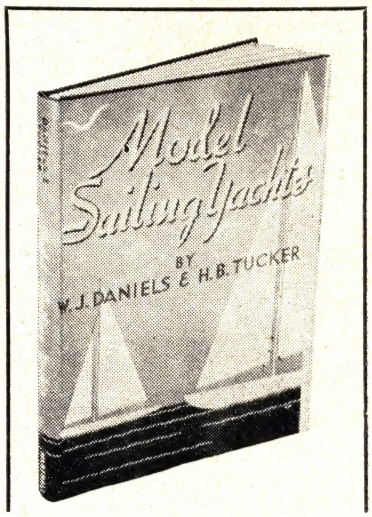

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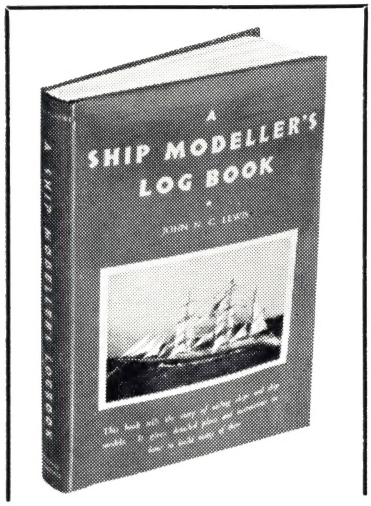

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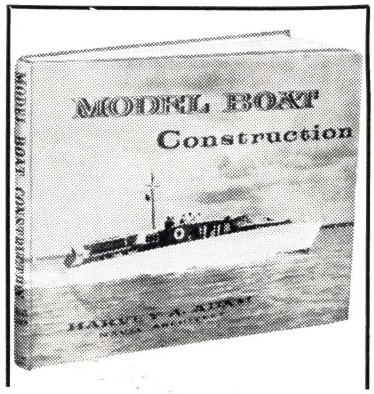

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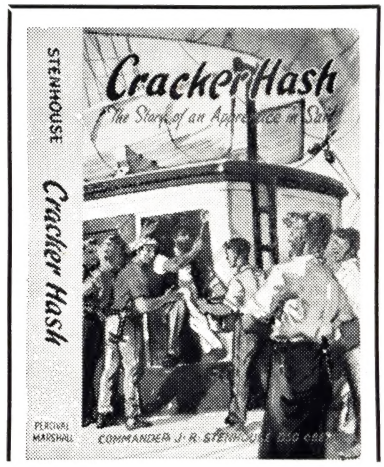

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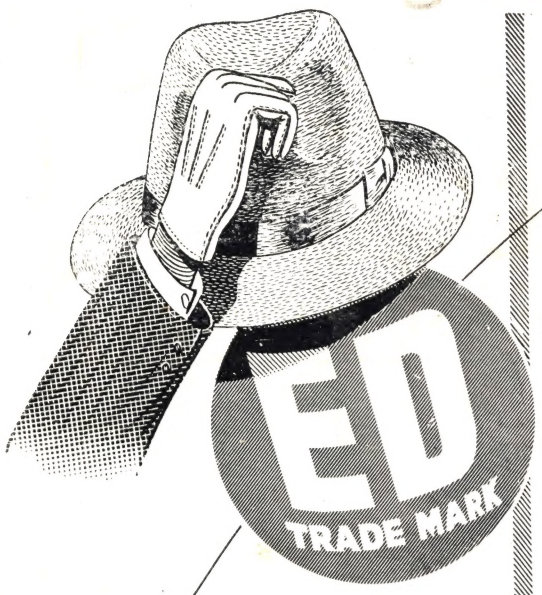

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